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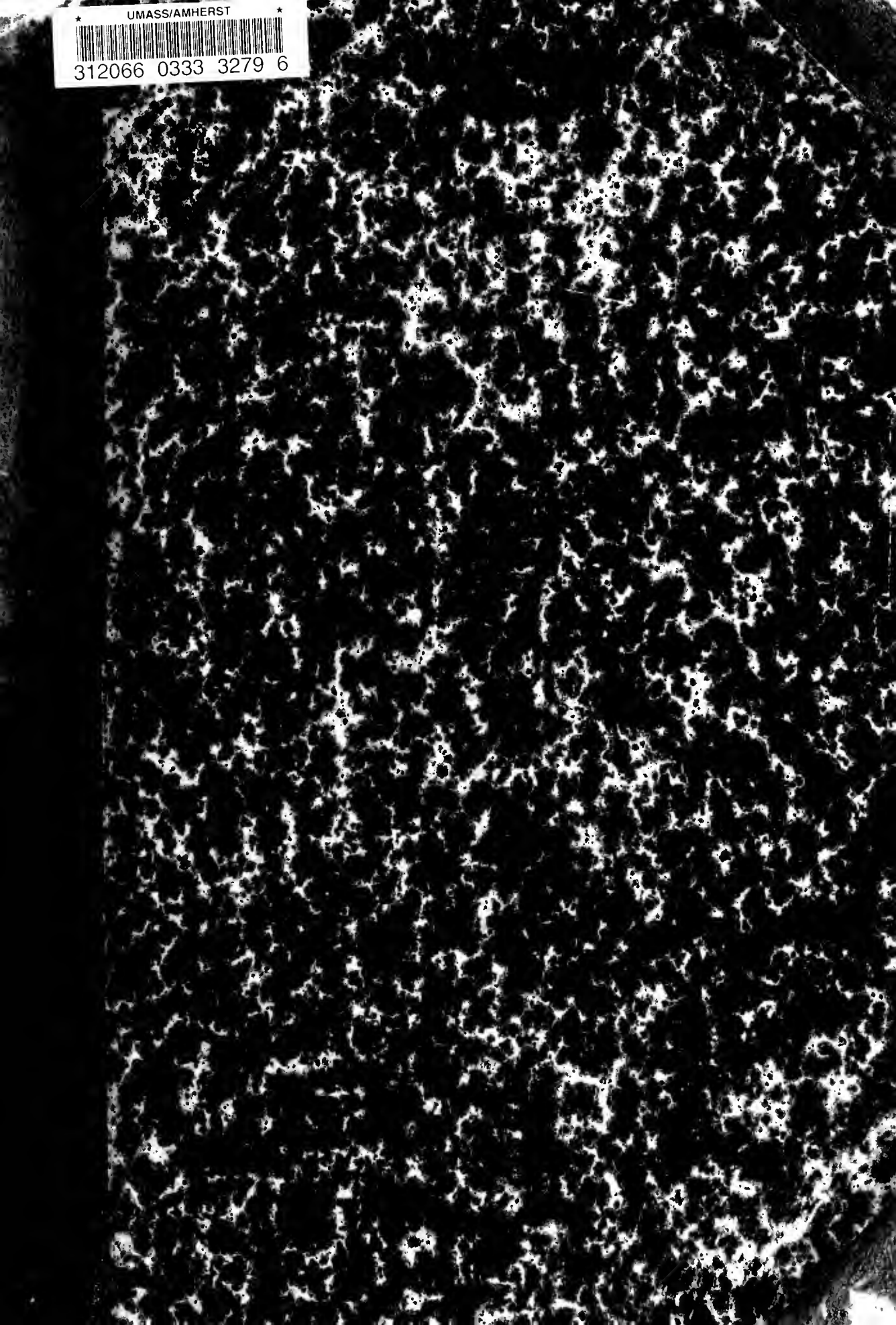

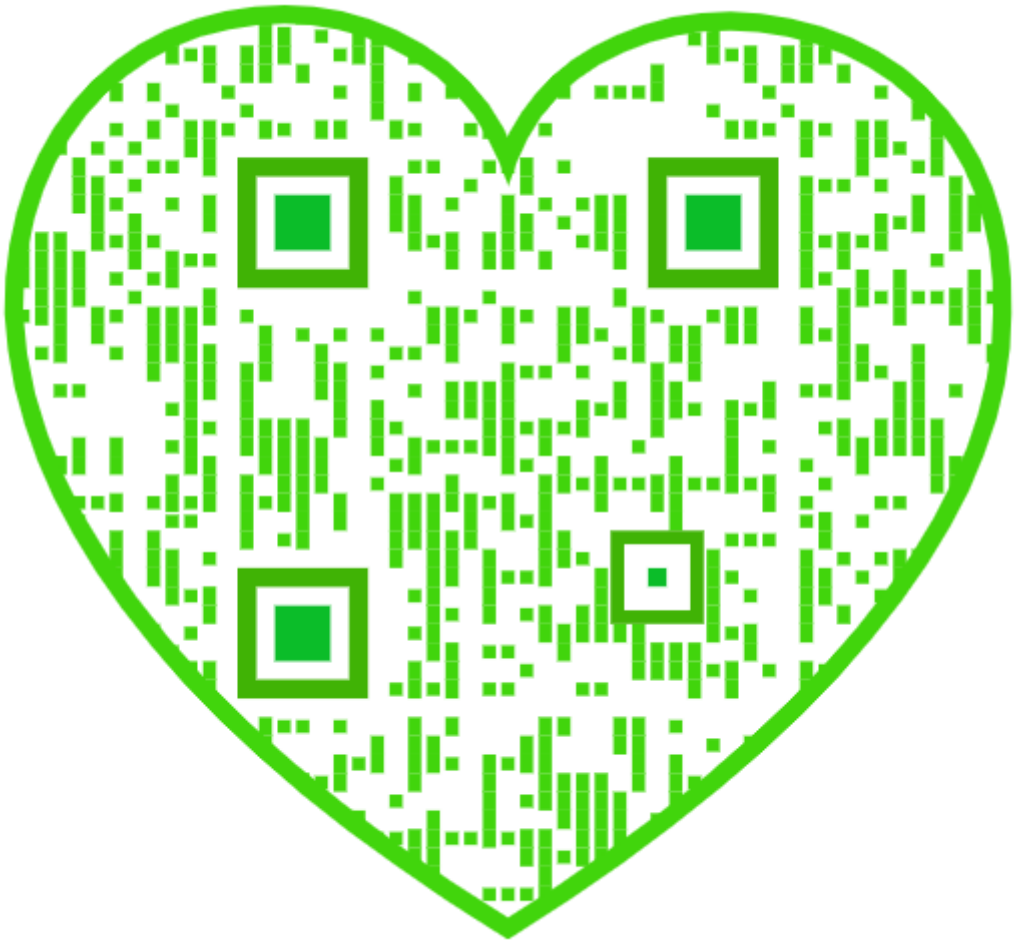

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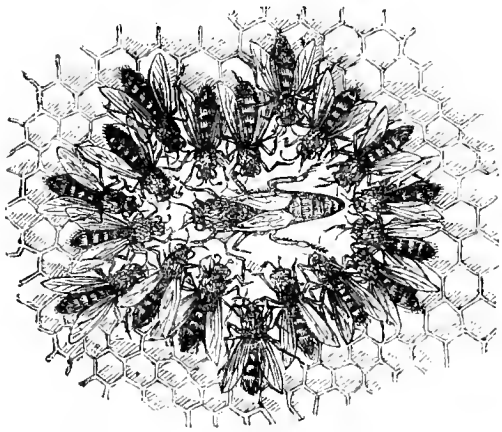

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THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 117. Vol. X.] JANUARY 1, 1883. [Published Monthly.]

Editorial, Notices, &c.

JANUARY.

January is the month in which bees are best when at rest and inactive, but it is the month in which bee-keepers should be specially active, both as regards the formation of new County Associations and the perfecting of the organization of those already established. There are now thirty County Bee-keepers' Associations connected with the Central or British Bee-keepers' Association, nine of which have been formed during the past year, namely, Caermarthenshire, Hampshire, Herefordshire, Huntingdonshire, Lancashire and Cheshire, Oxfordshire, Northamptonshire, Worcestershire, Yorkshire, and Somersetshire. Two more, Nottinghamshire and Bedfordshire, are in the process of formation, and before the new year has far advanced may be expected to be in active operation. Now is the time for those counties which have no Association either formed or being formed to bestir themselves. Subscriptions should always be due on January 1st in each year, in order that the balance-sheets should be made up by the 31st December, the annual meeting of the members held, and the report and balance-sheet sent up to the Secretary of the Central Association before the annual general meeting of that body, which is fixed, as will be seen in the report of the December committee meeting, for February 14th.

For County Associations already formed the present month should be devoted to the holding the General Meeting and the presentation of the report and balance-sheet for the past year to the assembled members. Now is the time for notice to be given of any alteration or amendment of the rules, and for the election of the County Committee for 1883. If lecturing-tours are considered advisable, the present is the month in which they can be commenced with the greatest probability of success; and last, but not least (for this point seems to us of the greatest possible importance), arrangements should now be made for engaging a county expert, if none have been hitherto employed by the Association, and for arranging the programme of his spring visits to the homes of the members.

So much for the exertions demanded from the secretaries, committees, and members of the County associations for the month of January. Upon the members of the Central Association itself a still graver obligation is imposed, viz., that of electing the Committee of Management for the year 1883. The election (we say this for the benefit of those who are not members of the British Bee-keepers' Association) is conducted by means of voting papers—the voters being those who have paid their subscriptions for the current year, the number of votes being in proportion to the amount of subscriptions—and the candidates being selected from those members who contribute the sum of 1*l.* annually to the funds of the Association. That there is any necessity for an alteration of this qualification, as has been suggested, we most strenuously deny. Any member who wishes to become a candidate can do so now by increasing his subscription for the year to the required amount. If he be a representative man with a following behind him, his followers can surely make up the amount amongst them, and enter their candidate for the Great Election Stakes. Those who subscribe most liberally to the Association are the most likely to be interested in it and to have its welfare at heart. Under the present regulation there has been no difficulty in forming a committee of gentlemen who have attended the monthly committee meetings with the most commendable regularity, and have devoted much time, thought, and money, in the cause of bee-keeping and its introduction to the cottagers of Great Britain under a more humane and a more profitable form than it has hitherto been presented to them. Nay, we will not content ourselves with pointing out that there is no necessity whatever for a change in the constitution of our Association in this respect; we will go farther, and warn the members that any attempt to undermine the constitution of our Association in this point would bring the whole superstructure down about our ears, for our 'prophetic soul' tells us that such a change would be followed by the resignation of the great majority of the present officers, and that the state of the Association would be reduced to the level to which it sunk in the spring of 1878. Though we shall ever advocate reforms when these appear to us to be needed, we most earnestly deprecate alterations proposed without reason or necessity.

One more scope for the energies of bee-keepers during the present month we must beg leave to

indicate, which is the increase of the funds of the Central Association.

There is some idea of holding the Annual Show of the Association for the year 1883 in a more central part of London than South Kensington, and at an earlier date, before the close of the London season, when the metropolis is less depopulated. To ensure a really good Show, a really good schedule of prizes is a necessity; and a good schedule, such as will give every sort and condition of men a fair chance of distinction, cannot be put forward without an augmentation of prize-money. Members of County Associations must 'look unto the rock from whence they are hewn,' and not think that the Affiliation Subscription of one guinea, which barely covers the cost of medals granted for their Annual Shows and the expense of publishing the collected Reports, is all that is required from them. The minimum subscription in either case is so small that ardent bee-keepers may well be expected to become Members of both the Central and the County Associations. Bee-keepers who do not belong to County Associations should also think of the great strain laid upon the Parent Association. We are, of course, very glad to have subscribers to the *Bee Journal*, but these must not think that by subscribing to the *Journal* they in any way connect themselves with, or benefit, the Association. Above all, we must reprobate that spirit of selfishness from which even bee-keepers are not exempt, and which prompts them to withdraw their subscriptions from the Association because they do not see what good they get out of it. Unless *individually* they cannot see what good the Association is doing to others they have no right to advance this excuse.

The British Bee-keepers' Association is founded on the principle of philanthropy and unselfishness. Its first aim is to do good to others, not to itself; to hold out a helping hand to the cottager who needs help; to give light to those who sit in darkness; to aid in feeding and clothing the labourer's children, and in paying the doctor's bill; and in making some provision for the days of sickness and old age. If in doing this it can bring new inventions and discoveries before the notice of the wealthy, so much the better for the cause of bee-keeping; but let it never be forgotten that the Association was founded in its outset on the basis of philanthropy and humanity. No bee-keeper should refuse to support it because he individually can derive no personal advantage out of it.

And now one word for ourselves. We shall endeavour to make the *Journal* a thorough Bee-keepers' Paper, and to give the subscribers good value for their money. Articles will be found in it contributed by the late Editor, Mr. C. N. Abbott, Sir John Lubbock, Bart., Rev. G. Raynor, Messrs. T. W. Cowan, A. Neighbour, R. R. Godfrey, F. Cheshire, G. Walker, W. Ingram, R. J. Bennett, R. Sproule, W. N. Griffin, C. Tite, W. H. Dunman, J. P. Jackson, Colonel Pearson, Herr Gravenhorst, and many other writers of well-known experience and ability. No pains will be spared to obtain 'Answers to Queries' from the highest authorities; and the columns devoted to these questions, with the answers to them, will form not the least interesting portion of the *Journal*. With regard to a more frequent issue of the *Journal* (upon which point we have received a memorial from the members of the Lincolnshire Association), we must remind bee-keepers that, if they wish the *Journal* to appear more often, the first step towards the attainment of their wish is to increase its circulation. If bee-keepers will not only subscribe to the *Journal*, but also recommend it to their friends, and introduce it into village reading-rooms in the country, and mechanics' institutes in the towns, we can, I think, promise a more frequent issue after the April number. The only question that will then remain will be whether the issue shall be fortnightly or weekly; and on this point we shall be glad to receive the views of the subscribers themselves.

For all the offers of assistance and the kind wishes that have been expressed towards me on my entrance on the duties of editorship, I desire to return my hearty thanks, and I trust that the year we are now entering upon may be to all bee-keepers a happy and a prosperous one.—Ed. *B. B. J.*

ABBOTT TESTIMONIAL FUND.

(*To the Editor of the 'Standard.'*)

Sir,—On May 1, 1873, was published the first number of the *British Bee Journal*, and since then its monthly appearance has been the undoubted means of rendering scientific and practical assistance of extreme importance to amateurs and others who desire to make apiculture either profitable, instructive, or pleasurable. To the efforts of Mr. Charles Nash Abbott, by means of this, the first periodical of the kind in this country, and of which he was the originator, proprietor, and editor, are mainly due the formation of the British Bee-keepers' Association, also the inception of numerous local societies and annual shows of bee-gear and produce.

This month of December witnesses the *Journal's* transference to the Honorary Secretary of the parent Association; and it has occurred to myself and other friends of Mr. Abbott that, independently of any pecuniary consideration or advantage attaching to such transfer, it would be congenial to the feelings of all who are indebted to this eminent Bee Master for help and advice, to mark in a tangible manner their appreciation for the services individually and collectively rendered by him in promoting and assisting the advancement of this humanising and delightful science. May I ask you to kindly insert this letter in your paper, so that such views and suggestions may be thereby elicited as will enable the proposition it contains to assume a definite shape?—I am, Sir, your obedient servant, Richard William Partridge, 143 *Coningham Road, W., December* 5.

From C. Tite, Esq., *Yeovil, Dec.* 14, 1882.

I send herewith copies of articles and letters recently published in the *Standard* and *Evening News* referring to the retirement of Mr. Abbott from the editorship of the *Journal*, and suggesting that a testimonial should be presented to him, in acknowledgment of his valuable services in the promotion of rational bee-keeping. I

shall be very glad to give my mite, as an expression of personal thankfulness for the assistance he rendered me on many occasions in the early days of my bee-keeping career, and as a mark of my appreciation of his able advocacy of progressive apiculture. Probably hundreds of others will be glad to do the same if the matter is taken in hand by the B. B. K. A., as I trust it will be.

[We have obtained permission from Mr. Partridge to reproduce his excellent suggestion in the *Bee Journal*. We need hardly say that Mr. Partridge's idea meets with our most cordial sympathy, and that we shall be very glad to receive and acknowledge any subscription to the 'Abbott Testimonial Fund' which may be sent to us. Mr. Partridge is of opinion that (as there is no reason for delay) the Fund should be closed by the 1st of February, and points to the Latin proverb, '*Bis dat qui cito dat*.'—Ed.]

An account has been opened at the Bucks and Oxon Bank, Hemel Hempstead, to be called 'The Abbott Testimonial Fund.' It is requested that communications should be directed to Mr. John Huckle, King's Langley, Herts, which will be duly acknowledged in the *Journal*.

The following subscriptions have been promised, or received:—

R. T. Partridge, Esq.	£1	0	0
Rev. H. R. Peel	1	1	0
R. R. Godfrey, Esq.	1	0	0
Charles Williams, Esq.	1	1	0
F. R. Jackson, Esq.	1	0	0
Mr. John Walton	0	5	0
Mr. A. Cockburn	0	5	0
Mr. J. Huckle	0	5	0
Mr. G. Henderson	0	5	0
Mr. James Lighton	0	5	0

APICULTURE IN 1882.

The contemplative bee-master, as he strolls through his apiary and surveys his hives with all their enclosed vitality, may feel inclined to exclaim with Shakespeare's king, 'How many thousands of my subjects are at this moment asleep!' or, if not literally asleep, his bees are in that state of repose and calm that he feels thankful they are enjoying, and, humane bee-keeper as he is, he feels no disposition to disturb them or to invade this 'the sabbath of their year' by needless handling or by undue stimulation. Then, while the bees are restful, and the bee-master hopeful, it may not be inopportune to gather up the shreds of the journalism of the past year, and endeavour to weave them into one piece of continuous history.

In the retrospect of the year 1882 the first great outstanding feature that catches, and detains, the eye is the British Bee-keepers' Association, and the grand work it has accomplished; and it is far more pleasant and grateful to one's feelings to contemplate that which a society has effected than to gaze too microscopically on its possible shortcomings. One decided mark of the public appreciation of any society is the increase in the number of its subscribers; and this has been apparent in a very special degree in the year's history of the B. B. K. A., as no less than 150 persons have enrolled themselves as members; and it is gratifying to note that the Earl of Derby has become a life member, and that on announcing his intention to be so, he remarked that 'he considered the Society was of great use, and hoped it would succeed.'

Great success has attended its efforts in the formation of affiliated Associations. During the past year ten Associations have been formed; and two others will soon be added. The assistance rendered by the parent Society to the younger Associations has been most serviceable. Lecturers have been sent, free of cost, to several counties, viz., Cornwall, Bucks, Berks, Derby, Wilts, &c.

Wales, which, during the tour of Messrs. Abbott and Carr to Ireland, not unnaturally complained of being left out 'in the cold,' has not been overlooked during the past year. The B. B. K. A. has extended a helping hand towards South Wales. An exhibition of bees, hives, &c., which was held at Cardiff in connexion with the Bath and West of England Agricultural Show, has been productive of much good. Two County Associations, Brecknockshire and Caermarthenshire, have already been established, and a third, Glamorganshire, is in process of formation. A series of lectures has been arranged to be delivered during the ensuing spring in these counties.

At the Annual Show at South Kensington there was a considerable increase in the number of exhibitors, and that a severe strain was put upon hive-makers was proved by there being no less than seventy hives shown in four classes. The public, too, this year have taken a greater interest in the show; for though the exhibition of honey was, in consequence of the inclemency of the weather, very small, yet more than double the amount of sales were effected compared with the first annual show of the Association held in 1874.

At the several conversaziones that have been held, very interesting and instructive papers have been read, viz., 'Bee-houses and Hives,' by the Rev. G. Raynor; 'A Bee-keeper's Experience in the East,' by Mr. Blow; and 'The Social Instincts of Bees: their Origin by Natural Selection,' by Mr. G. D. Haviland. These papers have elicited some most practical discussions.

Modern Bee-keeping (issued by the Association) has proved itself a most valuable and useful handbook. It has passed through three large editions, and a fourth is now being prepared for the press.

The B. B. K. A. has also been instrumental in creating a most promisefull band of experts. The several candidates who responded to the call, having passed through a rigid examination as to their knowledge of the theory and practice of bee-keeping, have been granted certificates indicative of their several abilities. In coming years we shall hear once and again of this *juvenum manus ardens*, and the result of this competition on the bee-keeping of the future must prove most satisfactory.

The Library has partaken of the progress which has marked the other ramifications of the B. B. K. A. In consequence of the death of that veteran bee-keeper, Mr. J. G. Desborough, of Stamford, his widow was desirous of disposing of the books which for upwards of forty years her husband had been collecting. The greater portion of these having been offered to the Association, through the munificence of their honoured President, the Baroness Burdett-Coutts, they were enabled to avail them-

selves of this opportunity. There are now upwards of 300 books in the Library, which are fairly representative of the bee-literature of this country, and the number of borrowers of the books has considerably increased.

A most interesting experiment has been inaugurated by the Hon. and Rev. H. Bligh, which has for its object a comparison of the different hives and the most economic modes of working them. Seventeen competitors have entered the lists, and the matter will be settled at the end of August in the present year.

There has been during the year a large importation of queen-bees from Cyprus and the Holy Land. There is considerable diversity of opinion among bee-keepers respecting the merits of these strangers. We shall be safe in predicting that the 'fittest' will 'survive'—according to the estimation of the public.

During the year there has been a considerable advance in the solution of the 'vexed question' of the Standard Frame. Whether it is desirable that these should be finally settled would appear from our correspondents to be a dubitable point.

The general inclemency of the weather throughout the United Kingdom has sensibly affected the honey yield in Scotland. The progress of apiculture in that part is, however, well assured. Several interesting lectures have been delivered there; one especially dwells in our memory delivered by the Rev. John Irvine at Glasgow, which was remarkable for the novelty with which his subject was treated, and the lofty and glowing poetry of his language. Mr. Bennett, Secretary to the Caledonian Society, suggests that 'Government should appoint experts in each county, so that honey should not be one of our imports, as in a good season hundreds of tons might be secured if we had only bees to collect it, and farmers qualified to take care of them.'

In Ireland very encouraging and successful shows have been held in Dublin, Cork, Portadown, Strabane, &c. There still remains, however, much uphill work for earnest workers to accomplish in the dissemination of advanced apiculture in Ireland.

Space would fail us were we to attempt to mention the several shows which have been held by the County Associations. Let it suffice to say that the interest which has been excited by these Associations in former years has been well sustained, and their usefulness has greatly developed. We cannot, however, omit the sequel to the Lincolnshire Bee-keepers' Association Show—it being unique of its kind. We refer to the Honey Fair held at Grantham under the management of R. R. Godfrey, Esq. He has thereby shown a bright example to all secretaries, and has proved that however great the yield of honey may be there need be no difficulty in its finding purchasers. It is to be hoped that in process of time honey fairs may be the ordinary adjuncts of all County Associations. The Lincolnshire Association have been especially favoured by their splendid yield of honey; and the result is that several of the members have determined in the coming year to enter on bee-farming on a more extended scale.

The Bee Show held at Reading was very sucessful. It was visited by many thousands, and the greatest interest was evinced in the articles exhibited.

The Princess Beatrice has kindly accepted the office of President of the Hampshire and Isle of Wight Bee-keepers' Association.

The principal addition to bee-literature during the year has been the translation from the German of Dr. Dzierzon's *Rational Bee-keeping*. As this work opens up a whole continent of thought to bee-keepers, they doubtless will largely avail themselves of the opportunity thus afforded of increasing their knowledge of bee-keeping, and of gaining an acquaintance with the modes in operation adopted by their *confrères* in Germany.

The year 1882 has been one of assured progress for all hive-makers and purveyors of bee-apparatus. It has been a time of extreme tension with most of them, and they have had the greatest difficulty to keep abreast with the requirements of their customers. Many persons have, during the past year, entered upon this business, and those who were formerly engaged in it have been obliged to extend their workshops and introduce machinery. Large importations have been made of sectional supers and of foundation-presses from America. The consumption of wax in the manufacture of comb-foundation has been almost incredible, one maker alone having in the first ten months of the year consumed in this way seven tons. The amount of wax imported into this country in the year 1881 was as follows — From Germany, 2284 cwts.; France, 1905; Portugal, 6948; China, 2414; Japan, 4404; United States of America, 8163; British West India Islands, 1183; other countries, 3655. Total, 30,956 cwts. Value of wax imported, 132,698*l*. Perhaps this statement may create in the minds of some bee-keepers a desire to supply the evident demand for this article, and seek to retain the money in the pockets of their own countrymen in preference to its being sent abroad.

The honey produce of the year, with the exception of some highly-favoured districts, has been very much less than in the previous year.

We have thus rapidly gone over the most salient features of the past year, and trust that prosperity may attend the labours, and success crown the efforts, of all bee-keepers in the year 1883.—G. Henderson, *Clarendon House, Ealing.*

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

Next Quarterly Committee Meeting, Wednesday, Jan. 24th: a Conversazione will be held at six o'clock, when a paper will be read by the Rev. W. E. Burkitt, rector of Buttermere, Hungerford, Wilts, subject: 'The best means of instructing cottagers in bee-keeping.' Notices of motion for this meeting must be sent to the Assistant Secretary not later than Wednesday, Jan. 17th.

Annual General Meeting, Wednesday, February 14th. Notices of motions for this meeting must be sent to the Assistant Secretary not later than Wednesday, Jan. 31st.

Monthly meeting of the Committee held at 105 Jermyn Street on Wednesday, December 6th. Present—T. W. Cowan (in the chair), Rev. E. Bartrum, Hon. and Rev. H. Bligh, Rev. G. Raynor, H. Jonas, J. M. Hooker, D. Stewart, and the Rev. H. R. Peel (Hon. Secretary). The minutes of the last Committee Meeting were read, confirmed, and signed. The Balance-sheet for the month ending November 30th was also read, showing a balance in hand of 36*l.* 17*s.* 10*d.* The Sub-Committee appointed for the management of the Honey Market presented their report; the report having been considered, it was resolved, 'That the Assistant Secretary do amend the forms for the purpose of arranging that all payments for honey sold be made through the Secretary, and that copies of the same be forwarded to each member of the Committee previous to the next Committee Meeting.' The Chairman reported that he had received a letter from Mr. Staelhammer, a resident of Sweden, inquiring as to whether, in the event of his becoming a member of the British Bee-keepers' Association, the Association's agent would undertake to sell his honey and upon what terms. The Committee were unanimously of an opinion that the Association could only undertake the sale of pure English honey. The Committee proceeded to the revision of the Prize Schedule for the Annual Show of 1883. Mr. Stewart moved, and it was unanimously resolved, 'That money be offered as prizes in lieu of medals to those classes in which manufacturers were the exhibitors.' The Committee were unable to complete the Schedule, it was therefore resolved, 'That an adjourned Committee Meeting be held on Wednesday, December 20th.' Resolved that the next Monthly Meeting be held on Wednesday, January 24th, and that the Annual General Meeting be held on Wednesday, Feb. 14th, subject to the approval of the President of the Association.

Adjourned meeting of the Committee held at 105 Jermyn Street, on Wednesday, December 20th. Present (T. W. Cowan in the chair), Hon. and Rev. H. Bligh, J. M. Hooker, D. Stewart, W. O'B. Glennie (Treasurer), and Rev. H. R. Peel (Hon. Sec.). A letter was read from the Royal Agricultural Society of England, approving of the draft schedule of prizes to be offered for bees, hives, and honey at the York Exhibition, to be held in July next, upon the same terms and regulations as adopted at the Reading Show in 1882. A letter was also read from the East of Scotland Bee-keepers' Association, asking upon what terms additional medals could be supplied to affiliated associations. The Committee were of an opinion that the engraving on one side of the medals was not suitable for the general use of county associations. The Assistant Secretary was instructed to point out to the Secretary of the East of Scotland Society that an altered 'die' for one side of the medal should be prepared, and if this was carried out the Committee would supply the medals at the lowest possible price.

The Committee proceeded to the revision of the Prize Schedule for the Annual Show of 1883, and completed the same: resolved, 'That the Schedule as arranged be submitted for the approval of the newly-elected Committee for the ensuing year.'

The Library.—The Librarian desires to acknowledge, with thanks, the receipt of the following books:—

From Mr. J. Camaschella: Nuove Nozioni di Fisiologia. By Giotto Ulivi. Forli, 1881.

From Mr. J. T. Harveyson: The Guests at Home. By C. E. Meetkerke. London, 1881.

From the British Bee-keepers' Association: The British Bee-keepers' Association and County Affiliated Associations' Reports. 1880.

From Mr. C. N. Abbott: Delle Bibliografie Speciali, e particolarmente di quella Apistica. Da Francesco Beltramini de Casati. Firenze, 1882.

From Mr. D. Stewart: The Story of a Bee and her Friends. Told by herself. London, 1867.

From Messrs. Abbott and Stutterd: Dzierzon's Rational Bee-keeping; or the Theory and Practice of Dr. Dzierzon, of Carlsmarkt. Translated by H. Dieck and S. Stutterd. Edited and revised by C. N. Abbott, [late] Editor of the *British Bee Journal.* With numerous illustrations. London, 1882.

The following works, acquired by purchase, have been added to the Library:—

Scenes of Industry, displayed in the Bee-hive and the Ant-hill; with a brief Description of the Wonders of the Insect World. With engravings. London, 1830.

Insect Architecture. (The Library of Entertaining Knowledge.) London, 1830.

THE SOCIAL INSTINCTS OF BEES: THEIR ORIGIN BY NATURAL SELECTION.

Discussion.

The Rev. G. Raynor said: The paper to which they had just listened was most interesting, and its subject, the survival of the fittest, as applied to bees, opened a wide field for deep thought. The instance which Mr. Haviland had given, of twenty-two hives being reduced to one, by the propensity of robbing, so strongly developed in some varieties of bees, was a remarkable one, and threw light on the temper and energy of the Cyprian bee lately introduced, in considerable numbers, into this country. In the midst of about forty colonies of blacks and hybrids he had placed a strong colony of Cyprians, who distinguished themselves by attacking all the other hives, although their own hive contained at least sixty pounds of honey. He had found these Cyprians, in considerable numbers, in every hive in his apiary, their object, no doubt, being plunder; and so skilful were they in eluding the vigilance of the guards, that he rarely found the dead body of a Cyprian; while they, on the other hand, by no chance, allowed the entry of a stranger bee to their own hive. The extreme energy and fecundity of the Cyprian bee rendered it a most valuable acquisition; and although a few of our weaker colonies might be destroyed, as had been the case in his own apiary, the loss would soon be recouped by the honey and swarms produced by this extraordinary variety of bee. He certainly augured a great future for the Cyprians. If a colony of one variety could reduce twenty-two hives to one, that variety was the Cyprian, which must, of necessity, become the bee of the future! The Syrian and Holy Land bees, especially the latter, were of a quieter and gentler disposition. These also he had found splendid honey-gatherers, and most prolific, and they were not so much addicted to robbing as the Cyprians. He noticed that the Cyprians destroyed their drones more expeditiously than any other race of bees that he had knowledge of. When it was determined that the drones should be expelled they set to work with so good a will that in from four to six hours the entire drone population was driven from the hive, and so strict a guard over the hive was kept, that not a single one could regain an entrance; while with black bees the operation often extended over several days, causing great commotion in the hives. There was no doubt that the Cyprians were a most irritable race, and woe be to the man who handled them without the greatest care and quietness; but with these precautions they were easily manipulated, and he preferred examining his Cyprians to many of his hybrid stocks. As regarded encasement of queens, if he understood Mr. Haviland aright, he had stated that an encasement rarely lasted longer than seventeen hours, and that death was the certain result. He could only say that some years ago he had an Italian queen under encasement

for seven days; she was liberated every day, and again encased; the final result being that she was received, and became one of the most fertile queens he ever possessed. In changing the queen of a hive, commonly termed *queen introduction*, he had experienced no serious difficulty, having during the present season introduced forty-seven queens, of the Italian, Cyprian, Syrian, Holy Land, and Carniolan varieties, without a single loss. Generally speaking, after the removal of the queen of the hive and the caging of the strange queen, he allowed a period of from twenty-four to forty-eight hours to elapse before liberating the latter, when he had always found her joyfully received.

With regard to the arguments in favour of natural selection, and survival of the fittest, to which Mr. Haviland had made reference, there could be no doubt that the strongest of the young queens, having obtained a victory over her sister antagonists, was selected to perpetuate the race. They were all aware that with an after-swarm as many as six or seven young queens often departed. What became of these, only one being tolerated? No doubt battles royal took place, either while the swarm was suspended from the branch, or after the hiving. Thus the fittest survived to reproduce in her offspring her own energy, perseverance, and strength of constitution.

The Chairman (Rev. F. T. Scott) showed that he got a Cyprian queen from Mr. Blow, and had found it very fertile. It soon filled the hive with Cyprians. In the beginning of the month of June when the hive was in a flourishing state, and when he expected to get a good harvest he noticed that the Cyprians began to diminish in numbers. He suspected there was something wrong in the hive. In the course of a fortnight or three weeks afterwards he still found the Cyprians daily diminishing, the brown bees increasing, and he came to the conclusion that a small English swarm, with a queen at the head, had taken possession of the stock, and killed the Cyprian queen. That was a decided instance of antipathy between the English and Cyprian bees.

Mr. Blow said that when they came to consider the large number of races allied to the Cyprian bee, the whole of the bees of the extreme East were yellow, and therefore belonged to that race, and when they came to consider the small number of black bees, they might conclude that was the result of the selection of the fittest. He found the yellow bees very much greater in number than the black bees. The fittest bee would be that which most economised time and energy, and certainly in the destruction of the drones the Cyprian bee economised time and energy. The Cyprians turned out their drones in the daytime. He believed that these queens were much more vigorous than those of the black races and also prolific in raising bees during the summer.

Mr. Jackson said that the most of those who had kept black bees and Ligurians had found that during the honey-gathering the hive was mixed. The black bees did not object to the coloured bees coming among them. He hardly thought it was due to fighting that they found so many Ligurians. A well-known characteristic of the Cyprian bee was that they killed their drones in a short time. The Cyprians were thought very much more of in Germany, where they were bred to a large extent. It had been found, however, that so far as the amount of honey went they were no better for the introduction of these different races. A good many honey-producers when they used to have black bees only, got as much honey as they now did when they had others. Would it not be better if our bees were larger? He had had some hives of bees that were extremely small—not much larger than flies, and he unfortunately found that they did little work. He thought it was the opinion of Mr. Cheshire that little bees did the most work. With regard to Ligurians being useful in fertilising clover; numbers had been sent to Canada for that purpose; and they had been introduced largely into Australia. But they were no better honey-producers because they sought the honey from clover blossoms.

Mr. Raynor wished to make an additional remark on the subject of the bees transferring eggs from cell to cell, and from comb to comb. He had been struck by an experiment lately made by an American in this direction, and related in an American journal, to the effect that a strong colony, in the height of the season, was deprived of its queen, and a frame of comb removed from the centre of the hive, its place being supplied by an empty comb—without an egg of any kind—newly wrought from foundation, and taken from another hive some time previously. After the expiration of three days this newly inserted comb was found to be filled with worker eggs; and, moreover, no less than six queen-cells, the only ones in the hive, were built upon it. If this experiment could be depended upon, the matter was set at rest for ever, and bees had the power of transferring eggs.

Mr. Blow expressed his belief that the gnawing propensities of bees had come about by the process of natural selection. The bee that had been best able to gnaw the skin of the grapes had probably been the one that had survived. There were a large number of bees that were black; but when they came to compare the total area of the world occupied by the black bee with that occupied by the yellow bee, they would find that the yellow bees occupied four-fifths of the total surface of the earth.

Mr. Cowan said that he had heard a great many papers read on practical subjects connected with bee-keeping, but he did not think that they had yet had any scientific paper of the standard of that which had just been read. There were several points raised in the paper which might be discussed, but he was afraid that they had not grasped the subject sufficiently to go into a lengthy discussion upon it. He understood that Mr. Haviland supposed that our honey bees were derived from the humble-bee, because of their instinct in laying a larger number of worker-eggs in the cells. He did not quite agree with that. He found that when the bees were left to themselves, the queens did not lay a large number of eggs in the cells. It was only when the queens were stimulated to the utmost that they would lay two or three eggs in the cell. By stimulation they had induced queens to lay, and they were able to get larger and stronger stocks in consequence. All that they had heard that night, of course, should be applied practically to bee-keeping. Some years ago he used to keep bees entirely from a scientific point of view: and until the first exhibition at the Crystal Palace he had kept a book in which he put down all the observations which he made. Unfortunately at that exhibition the book was stolen or abstracted in some way, as he had never been able to recover it. Since that time he had never kept a regular account of his observations. As he had then said, and had since maintained, that if we wished to keep bees successfully and properly, we must select the queens, and that we must breed for improved bees by selecting the very best queens. The best qualities in the queens were prolificness in laying a large number of eggs, and likewise in producing quiet, good workers, which would collect a large quantity of honey. Mr. Jackson asked if any good had been done by introducing foreign queens. He (Mr. Cowan) would say that some good had been done if it had only been the prevention of in-and-in breeding; besides, if bees bred from these queens were able to collect honey from clover which other bees were not able to, it was a gain to the bee-keeper. By selecting queens of the best quality you can improve the race. He thought the fighting propensities of the queens, too, were useful, because the best survived. He agreed with Mr. Darwin on that point. Mr. Cowan, speaking of the statement that queens were fertilised in confinement, observed that M. Giotto Ulivi had written a book on the subject, and he was sorry he could not agree

with his views on the matter. As far as his (Mr. Cowan's) observations went, the fertilisation took place in the open air, and he thought it was good for the queens that it should take place there, because when the young queen flew out for fertilisation, after taking observations of the surrounding neighbourhood, she flew away at an enormous speed, and therefore the strongest and swiftest drone had the queen for a mate. In this way they had again the selection of the fittest. Were fertilisation to take place only in the hive, instead of the breed improving, it would be deteriorated. In regard to the transferring of eggs from cell to cell, what Mr. Raynor had said was interesting. He saw lately in one of the American papers that a bee-keeper had a hive without a queen, and it contained only workers, and there were no eggs in the cells or grubs from which the bees could raise queens. But afterwards the owner of the hive, on examining it, found that there were eggs in the hive. One of the eggs developed into a queen, and he concluded that the egg had been transferred from another hive into that hive. He (Mr. Cowan) was certain that eggs could be transferred from comb to comb as Mr. Raynor had stated; and if such is the case he did not see why it would not be possible for the eggs to be transferred by bees from one hive to another. Some years ago he had tried an experiment of that sort in transferring workers' eggs from workers' cells to true queen-cells, and he had succeeded in getting the queen raised in the queen-cell to which he had transferred the egg. He mentioned this to show that it was possible to raise queens from transferred eggs, but he did not think, from the trouble he had over it, that the experiment would lead to practical utility. The food given to workers was, Mr. Haviland said, different from that given to the queens. From the effect it had on the queens he had not been able to detect any difference. He thought the only difference was that a larger quantity of food was given to the queen; and that he had been able to prove from the experiment he had just mentioned where he had transferred the egg from the ordinary cell to the queen-cell. In one case when he had removed the food from a large number of worker-cells, and put it into the queen-cell, he found that he had overdone the dose, and the workers removed a portion of the food, and the queen was matured. He supposed that they might take it that the food given to the queen was similar in composition to that given to the workers, except in taste. With regard to the larger bees, that was another experiment he had tried. He had had comb-foundation made with cells four and a half to the inch, instead of five to the inch, so as to produce an intermediate-sized bee between the worker and the drone. He was able to get a larger-sized worker-bee, but the difficulty was, the queen would lay eggs in the cells, and they would hatch in some worker-bees, and in others small drone-bees, and the workers and drones were mixed. He never could depend on having all worker-bees produced from the larger-sized cells, and had consequently given them up. He did not find that they worked better than the smaller bees. Mr. Cowan proceeded to observe that in America they had at last come to the decision that you must have young selected queens if you are to do any good. The Americans advocated keeping queens for three years; but he had always maintained that two years was quite long enough, as a queen could be exhausted of her laying powers in that time. He thought it was to the advantage of the bee-keeper to try to exhaust the laying powers of his queens in two years, and replace the queens by new ones the same as he did. If English bee-keepers were to pay more attention to selection and breeding for particular points, we should not require to import foreign bees; and he thought the bee of the future in England would not be either the Cyprian bee or the American bee but the English bee.

Mr. F. Lyon said, in reference to the food, that he had tasted it, and found that the food of the worker had a kind of sweet flavour; while the queen-food had a kind of cheesy flavour, or the flavour of bad cream-cheese. As regards the selection of the bees—whether they should be small or large—he thought the smaller bee had a longer tongue, and it was a better bee for gathering food from the flowers, being better able to reach the nectar.

Mr. Walker remarked on the time bees took to take to the queen: they took two days. He saw it stated that there were cases in which it might take even a week before the queen was introduced. He tried another experiment with an Italian queen, and it took rather more than seven days before they took to her; whether it was the smell or not it was difficult to determine. Then he had seen a young queen go to another hive and be perfectly well received, without being shut; but as a rule, bees did not take to the free queen without being caged in the hive to the queen-cell.

Mr. Haviland said that the instance which the Chairman had brought forward, in which a small swarm of bees had entered a hive full of comb, and had killed the reigning queen, was very interesting. He sometimes had doubted whether the queen-rejecting instinct might not really be the robber-rejecting instinct modified by the sense of the supposed robber being a queen. In this instance, however, by at once surrounding the strange queen the owners would have saved their own mother, but because they did not do that quick enough she was killed; so that it was evident that a selection in favour of the queen-rejecting instinct not only had been, but was even now, at work. As to the transfer of eggs it might be that some bees could and others could not transfer eggs, but Huber's careful experiment in which he prevented a queen from reaching the worker-comb, showed that the eggs which she dropped were eaten by the workers and not transferred to the empty worker-comb. He did not think that the hive-bees were derived from humble-bees. When he talked of hive-bees laying several eggs in one cell he was not referring to the queens at all, he was referring to fertile workers. He had never met with a fertile worker himself; but had seen it stated, that if several eggs were laid in a single cell, they would indicate the presence of a fertile worker. It was characteristic of a fertile worker to lay several eggs in one cell; and since the humble-bees laid several eggs in one cell, perhaps in the former case there was a going back to an old ancestor. As to the question whether bees would be better if larger or smaller, it seemed a difficult matter to settle; natural selection had probably picked out the size most advantageous in the wild state. The humble-bees were able to defend themselves better by being larger; and the hive-bees would be able to defend themselves better against wasps if they were larger; so possibly when bee-keepers could keep off their enemies it might be better to have them smaller. The humble-bees and hive-bees were larger than most of the solitary bees. The length of the tongue seemed to be of importance as far as collecting from red clover was concerned; but the size of the bee seemed as important for this purpose as the length of its tongue. If the humble-bees were watched it seemed to be only the big ones which went in, and they had a tremendous struggle on their way; the other bit holes close to the calyx to get the honey. Mr. Blow had spoken of the distribution of bees, and he had not quite understood him, as far as he understood there were a great many different sorts and species. The Ligurians, the Cyprians, the Syrians, and English were often regarded as one species; and he thought there were thirteen or fourteen distinct species of the same genus in the world. There were also three or four other genera of social bees which included many different sorts.

Mr. Garratt moved a vote of thanks to Mr. Haviland for his interesting paper, which, he said, was a strong

testimony to the fact that the movement in regard to bee-keeping and its exhibitions was creating a wide interest, and was making rapid strides.

Rev. Mr. Moyle seconded the vote of thanks, which was heartily responded to; Mr. Haviland acknowledged the compliment.

Mr. Bartrum moved a vote of thanks to the Chairman, which Captain Campbell seconded, and the Chairman acknowledged.

COUNTY ASSOCIATIONS.

HUNTS BEE-KEEPERS' ASSOCIATION.

On Thursday, Nov. 30, a meeting was held in the Town Hall, Huntingdon, to inaugurate a Bee-keepers' Association for the county. The Mayor of Huntingdon, A. W. Marshall, Esq., was in the chair, and there was a large gathering of bee-keepers and others interested in the subject. We noticed among others Rev. C. H. Hill, Rev. N. Royds, A. Sperling, Esq., J. Bird, Esq., R. Hempsted, Esq., G. Rust, Esq., J. Linton, Esq., Dr. Ballard, Mrs. Pickle, Mrs. Rust, Mrs. Desborough, Mrs. A. W. Marshall, Mrs. Thos. Fowler, Miss Desborough, Mr. B. Ding, Mrs. and Miss Anstey, Rev. A. Kirke Smith, F. R. Beart, Esq., Mayor of Godmanchester, Rev. D. G. Thomas.

The Mayor said that though not a practical bee-keeper himself, yet he felt a very great interest in the subject of bee-keeping, and he was sure that a Bee-keepers' Association would do a good work in the county. To those who kept bees partly for profit and partly for pleasure, the interest of watching these busy and clever insects, and sometimes tasting of their sweets, was very great indeed; but to the agricultural labourer and the cottager there was a much greater benefit. His moral and intellectual status would be greatly heightened, whilst pecuniarily he would benefit largely. He thought that bee-keeping would greatly tend to counteract the Atheism and Socialism that was spreading so much among this class through the publication of cheap literature. He would not delay them further, but would call upon Mr. Blow, who had been sent down by the British Bee-keepers' Association to give them some account of Bee-keepers' Associations and bee-keeping.

Mr. Blow sketched out the progress of bee-keeping in the English counties since the formation of the B. B. K. A. in 1874, and noticed the gradual spread of County Associations. He gave an account of the great profit and pleasure of bee-keeping, and advised that, before he treated upon modern bee-culture, that those present should form an Association, and after, if time allowed, he would go into bee-culture in detail.

Mr. White, of Somersham, who had been instrumental in promoting the meeting, gave some interesting details.

A committee having been appointed, the officers were chosen. The following are the committee and officers:—Committee: Rev. C. H. Hill, The Rectory, Warboys; Rev. N. Royds, Little Barford Rectory, St. Neot's; A. Sperling, Esq., Lattenbury Hill, Huntingdon; J. Bird, Esq., Brampton; R. Hempsted, Esq., Somersham; G. Rust, Esq., Alconbury Hill, Huntingdon; J. Linton, Esq., Buckden Wood, Huntingdon; Dr. Ballard, Huntingdon; A. W. Marshall, Esq., Buckden Towers; Mrs. Puckle, Graffham Rectory; Mrs. Rust, Alconbury Hill, Huntingdon; Mrs. Desborough, Hartford House, Huntingdon; Mrs. A. W. Marshall, Buckden Towers; Mrs. Thos. Fowler, Huntingdon; Miss Desborough, The Walks, Huntingdon; Mr. B. Ding, Papworth, St. Ives. Secretaries: Rev. F. W. Crick, Huntingdon; Mr. C. N. White, Somersham. Treasurer: A. W. Marshall, Esq., Buckden Towers, Huntingdon. A large number of those present gave in their names as members, and the Association was duly formed. It was arranged to largely circulate notices of the formation of the Association, and a date was named for the first meeting of the committee.

There being time to spare, Mr. Blow gave a practical address on bee-keeping, after which votes of thanks having been duly passed, the proceedings terminated.

NORTHAMPTONSHIRE.

An Association has been recently formed for this county under the presidency of Earl Spencer. R. F. Leake, Esq., of Long Buckby, and the Rev. E. Cadogan, have been elected as Hon. Secretaries. A meeting will be held at Northampton on January 31st, at which the Right Hon. the Lord Henley has promised to preside; endeavours are also being made to arrange for meetings to be held at Wellingborough and Kettering.

BEDFORDSHIRE.

Active steps are being taken towards the formation of an Association for this county. Mrs. Lowther, of Ampthill Park, has kindly taken up the cause, and is endeavouring to arrange for a series of lectures during the present month; the Rev. N. Royds, of Little Barford Rectory, is also lending valuable aid.

DEVONSHIRE.

The Annual General Meeting of the Devonshire Bee-keepers' Association will be held on January 12, when a paper on 'The best means of instructing Cottagers in the art of Bee-keeping' will be read by the Rev. H. R. Peel, Hon. Sec. of the British Bee-keepers' Association.

ANNALS OF COUNTY ASSOCIATIONS.

No. I.—THE LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.

By R. R. Godfrey, *Hon. Sec.*

Sir,—It affords me much pleasure to comply with your wish that I should give a sketch of the origin and formation of the Lincolnshire Bee-keepers' Association, its subsequent progress, and its present condition and prospects, for insertion in the January number of the *British Bee Journal*, the first under your own editorship. But before proceeding to do so, allow me first to offer you my hearty congratulations on entering upon your noble undertaking, and to express the hope that you may receive the cordial support of all bee-keepers, as also that of others though not themselves bee-keepers, but who may be interested in the welfare of our great work—a work which you have already done so much to advance. May you be long spared to continue your valuable labours amongst us and to witness good results.

What led to the formation of the L. B. K. Association.—Seeing the announcement that, in the month of July, 1875, a large horticultural show was to be held at Grantham, and my head being full of what had been done by the British Bee-keepers' Association at their first exhibition held at the Crystal Palace in September the year previous, I was prompted to communicate with the hon. secretary of the Society with the view of arranging a similar display on a small scale at their show. My suggestions were submitted to the committee, and with some little pressure were fairly well received; and, after much thoughtful consideration as to the probable number of stings and the fearful consequences that might result therefrom, were agreed to, provided I undertook the management. This I readily engaged to do; and, being considered a decent undertaker, equal to any call

which might be made upon me in that line, this fact may have inspired the committee with some confidence as to the care any unfortunate victim would receive, and possibly tend to allay any anxiety which may have existed.

Having happily secured the co-operation of Mr. Brett, who thoroughly entered into the work and generously provided the bees for the manipulation, my next move was to apply to my then new, but now old friend, Mr. Abbott, for his aid in carrying out my—as some folks called it—wild idea; and, as was then the case, and has ever since been, I had more help than I asked for. Mr. Abbott at once volunteered his assistance, and at his own expense came to the show, bringing with him a large collection of hives and other bee requisites, and successfully conducted this the first open bee-manipulation witnessed at such a gathering, where some thousands of people were present, exciting, as he did, the greatest interest by his masterly manipulation, while, at the same time, he completely non-plussed his spectators, and indeed was compared to Daniel in the den of lions. The facts of this successful event, which is now a matter of history, may be read on pp. 62, 63, 64, Vol. III., of the *B. B. Journal*, and having been so often alluded to, further remarks are here rendered unnecessary, except for the purpose of stating the origin of the L.B.K.A., that sprang out of the effect which Mr. Abbott's simple but practical illustrations had upon the feelings of some of those who witnessed them; and so as he is duly credited with being the originator of the B. B. Association let him be that of its elder sister.

The show over, Mr. Brett, Mr. Bolton, and myself, consulted as to the best way of proceeding to form a County Bee-keepers' Association. Luckily, about this time, the Rev. D. W. Pennell, a worthy old bee-master, with experience and energy, came to reside amongst us, and quickly made our acquaintance. A meeting was soon afterwards convened at a now rather notorious smuggery: present, Rev. D. W. Pennell, Mr. Bolton, Mr. G. Brett, and myself. Important as was the business to be considered, it was faced, and after much deliberation, and before the meeting closed, it was decided to start an Association, and a committee was formed. The Rev. D. W. Pennell being appointed hon. secretary, R. R. Godfrey hon. treasurer, and Mr. Bolton and Mr. G. Brett on the committee. Each having placed his subscription—half-a-crown,—in the safe keeping of the hon. treasurer, it was unanimously agreed that he be invested with full power to proceed forthwith in the work of the Association, the ever-memorable four half-crowns being the funds at command. Our next meeting was arranged to be early in September; in the meantime I had secured the support of Messrs. Ashwell, Holloway, Ingram, and Lowe, to act on committee; four half-crowns added to the funds, and further progress in arranging for the future being made, a rough draft of rules and prospectus was submitted and agreed upon. The next step before we ventured to launch our barque was to secure a President and Vice-president. The Vicar of Grantham, Canon Clements, now sub-dean of Lincoln, was waited upon, and readily consented to become a Vice-president, and further supported our appeal to the Bishop of Nottingham to become the President. The Bishop, with his usual kindness and readiness to help a good work, expressed his willingness in the warmest manner to accede to our wishes. This point gained, we had no difficulty in securing other gentlemen as Vice-presidents. The work thus far advanced, we then issued circulars and rules inviting members to join the Association, and by the end of the year 1875 there had been enrolled some forty to fifty members.

Its subsequent Progress.—All went quietly on up to the following spring, new members being enlisted in the meantime. As the season advanced, and with the prospect of a good honey harvest, we decided upon holding our first exhibition of honey, hives, &c. Being unable to secure suitable grounds for manipulation, we were obliged to leave out of our programme that most interesting of all parts of bee exhibitions, but convened a meeting in lieu of such, when addresses on bee-keeping were given. A fair accession to our army having occurred in the meantime, the event took place on the 12th of September, and was noted as a success, the meeting in the evening especially so. I would here remark that the value of such meetings, held at a time when you have drawn together numbers of persons interested in bee-keeping, cannot be too much over-rated. An occasional committee meeting as opportunities offered, a gradually increasing number of members, and the labour of preparing a report having been accomplished, our first annual meeting was held. The President of the Association in the chair, a large number of members being present, the report gave a total of 101 members.

A most interesting meeting followed, before the close of which the time and place for holding the next exhibition, and the question of holding a Honey Fair in connexion with it, were discussed and agreed upon. Encouraged by past support, and alive to the importance of open bee manipulations, it was decided to arrange for such; and having secured suitable grounds, and the kindly aid of Messrs. Abbott, Carr, Cowan, Desborough, and Symington, a doubt of our success was never dreamt of. The Exhibition and Honey Fair were held on September 11th, the report of which may be read on pp. 93, 94, Vol. V. of the *B. B. Journal*.

The exhibition over, after some little change in the committee, much chat about past and coming labours indulged in during the winter nights at the 'smuggery,' squaring up and getting ready a report, we again find ourselves at an annual meeting (see *B. B. Journal*, pp. 8, 9, Vol. VI.) Here we arrived at a somewhat important stage in the history of the 'Lincolnshire,' the infant born and cradled at Grantham was considered strong enough to toddle abroad. A worthy old member (Mr. Sells) attended the meeting, and demanded its first visit should be to Stamford (see *B. B. Journal*, p. 59, Vol. VI.) This agreed upon, and all necessary preparations made, a grand show with manipulations followed (see *B. B. Journal*, pp. 77, 78, Vol. VI.), Brown's hospital grounds being kindly lent for the purpose, our late friend, Mr. Desborough, with Mr. Sells and his son Tom, acting as generals. Financially the exhibition was not satisfactory, and caused some little anxiety to the committee; neither were there many recruits made, although the Stamford district is the best in the county as a honey-producing one. The committee, working steadily on, held their exhibition at Long Sutton the following year; which, through the interest of Mr. Swain, was carried out in conjunction with the Agricultural Society under favourable arrangements. Although every effort was made to excite interest by Dr. Measures and other members, even to our valuable colleagues, Messrs. Yates and Plowright, doing the 'Walk in, ladies and gentlemen, only threepence to see the Bees' business, very few converts were made. On this occasion, Mr. Carr kindly delivered a most interesting address, which left its mark. Boston being our next place to storm, with the hearty interest, and under the patronage, of the mayor, J. Thorns, Esq., a capital show was held (see *B. B. Journal*, p. 109, Vol. VII.), Mr. Best undertaking the post of assistant secretary.

On the evening before the show, a very influential meeting was held, when the Rev. Herbert R. Peel gave a most valuable address, which, thanks to his kindness, was printed and circulated amongst our members. The result of this exhibition, although not a success financially, was decidedly so as regards netting members, one in particular, Dr. Small, who afterwards accepted the post of district hon. sec., and has since been one of

our most zealous helpers. A very important move was at this time made by appointing district hon. secs. at various centres, namely for Stamford District, Mr. Tom Sells; Long Sutton, Dr. Measures; Spalding, Mr. Barrell; Boston, Dr. Small; Louth, Mr. Bywater; Lincoln, Dr. Russell; Sleaford, Mr. Thorpe; Market Rasen, Mr. Jevons. Large county associations would find the system of having district hon. secs. most valuable in securing members, collecting subscriptions, and assisting in the general work, especially at the time of exhibitions, as also in managing displays at local flower shows.

I may here note that the arrangement by affiliation to the Central Association being effected, opening out a means of co-operation by representatives attending their quarterly meetings, was a most desirable movement, and it could be wished that our funds were such as to enable us to send representatives more frequently.

Passing on to our annual meeting—fully reported in *B. B. Journal*, p. 31, Vol. IX.—it will be seen that we number upwards of two hundred members, not a large number after all our labours; but with a balance to the right, though small, and with a plucky band of workers, we go onward, our more experienced members willingly doing their best as experts and teachers, taking pride in the success of their pupils. We have no paid expert other than Mr. Tom Sells, who kindly undertakes the duty when desired, members paying his expenses. Several small displays at village flower shows have had good effect.

Coming now to the Louth Exhibition, the most successful one held in every respect (see *B. B. Journal*, pp. 106, 107, 108, 109, Vol. IX.). A large increase of members having been obtained through the hard-working district hon. sec., Mr. Bywater, duly assisted by Messrs. Foreman and Smith, who left no stone unturned to bring about the desired issue—all honour to three such worthies—a conversazione was held in the evening preceding, when short addresses were delivered by Messrs. Cowan, Sisson, Desborough, and Pennell, and the rector of Louth presiding; and a most pleasant, and I hope profitable, evening was spent. During the year following, and up to the Lincoln Show, great strides were made in our work, and a continued large increase of members. On referring, I find we had reached a total of 341 members. Here, again, I would remark upon the value of district hon. secs. in county associations whose exhibitions are held at different towns; and at Lincoln, Dr. Russell and Dr. Carline had the satisfaction of witnessing, as the result of their hard labour, the largest show as regards exhibits and completeness of arrangement, ever held; and to them is due in a large measure the increase of members (see *B. B. Journal*, pp. 137, 138, 139, 140, Vol. X.)

At the Lincolnshire Agricultural Society's Annual Show, held at Sleaford (see *B. B. Journal*, pp. 71, 72, Vol. X.), a mark was made, the L. B. K. A. managed a most successful show, and made a fair number of new members. Many large farmers have gone into bee-keeping on a large scale, most notably, Messrs. Brown, of Swineshead; Martin, Wainfleet; Thorpe, Evedon; Cooling, Bicker; Melbourn, Nocton Heath; and Yates, Grantham. The results of their harvest have been well seen, and commented on by the press, and we may look forward for much greater things. Notwithstanding the great inducements held out to our cottagers, we have not so large a number of members amongst us as we could wish, which fact is unsatisfactory, but we do find very many throughout the county who are adopting the more modern system.

Having arrived at the end of the Association's seventh year, it only remains for me to remark that its present position may be considered satisfactory as regards the progress made, and fairly so as regards its finances.

The success of the Lincoln show must, in no small degree, be attributed to the introduction of its annual Honey Fair. Novel as such fair was at first considered (none, I believe, having ever been held before in the kingdom); it is now looked forward to with as much interest as the annual exhibition; and, doubtless, many persons leave the fair impressed with what they have witnessed of the value of the work carried on by the Association. I may here remark, in passing, that I cannot too strongly urge committees of associations to consider the importance of providing some more definite means for assisting members in the disposal of their honey than generally exists. The large increase in the number of bee-keepers means a large supply of honey, consequently a greater demand upon the energies of committees for the providing of a good honey market; and no association can afford to remain inactive on this vital point without running the risk of, at least, having many disappointed members, and eventually many withdrawals. Whilst a member of the committee of the Central Association, I more than once drew attention to the great importance of this question, but my feeble pleading had but little weight, and on one occasion was met with the question, 'Were the committee of the B. B. K. A. to be a body of shop-keepers to sell their honey?' Be that as it may (we don't all see through the same glass), I do not hesitate to say all do wisely who adhere to the promise put forth to do their best to provide a market for the sale of members' bee-produce. I am pleased to assert, and the piles of letters beside me bear me witness, that bee-keepers of all classes express themselves grateful for what is done for them in this respect by the Lincolnshire Association; which fact we may reasonably hope will bring about a thousand-fold greater interest, and to further the cause.

Its future.—I look forward with full confidence to the Lincolnshire Bee-Keepers' Association's successful labours being more generally supported and its objects extended; with the continued aid of such worthy members as we have in the fore, there can be little to fear.

BEE-KEEPERS AT HOME.

No. I.—Mr. T. W. Cowan at Comptons Lea, Horsham.

Mr. Cowan, with whom we commence this series of biographical sketches, which we hope will prove interesting to our readers, was born at St. Petersburg on the 2nd of January, 1840, and is consequently forty-three years of age. He was educated at a public school (St. Peter and St. Paul) in St. Petersburg, and completed his education at the Royal Government School of Mines, London. His father was an engineer in the Russian Government service, but left it on the outbreak of the Crimean war in 1854. His father was a scientific man, and it was from him that Mr. Cowan inherited a love of science. Mr. Cowan embraced the profession of an engineer, but circumstances made it unnecessary to follow that profession. From youth he had a love for natural history; and in the year 1860 was first induced to turn his attention to the study of bees from reading some articles on bee-keeping in the *Journal of Horticulture*; and having had some correspondence with the late Mr. Woodbury he commenced by keeping bees in the Woodbury hive.

When certain letters in the *Times* appeared, he added to the Woodbury the Stewarton, and he has ever since worked both of these systems. He was at that time residing at Beckenham, in Kent, and not being acquainted with any practical bee-keeper he had to find out everything himself by experiments. About this time he induced Mr. Alfred Neighbour to visit him, and show him how to divide his bees. He then continued to experiment until he found that he had complete mastery over them and could do anything described in the various bee-books.

In 1870 he removed to Horsham, and here he had the opportunity of keeping a large number of hives; he kept as many as thirty in lofts over his stables. He could examine and manipulate his bees in all weathers. Besides those kept in the loft four stocks were kept in a bee-house, and two on independent stands, and in this manner he was able to compare the different modes of keeping bees. Although he kept most of them in frame-hives, he had some in skeps, cheese-boxes, Addey's hives, German hives, and on other systems. All were, however, ultimately discarded for a modification of the Woodbury and Stewarton hives called the 'Cowan Hive,' a detailed description of which will be found in his *Guide-book*. In 1870 he turned his attention to queens, and found that by stimulating them their prolificness could be enhansted in two years, and has always since advocated the rearing and adoption of young queens, if a large quantity of honey were the object. At the first show at the Crystal Palace Mr. Cowan exhibited upwards of 700 lbs. of super-honey taken from twelve hives. He pointed out in a letter to the *Bee Journal* that the large quantities were obtained by getting the stocks strong in spring, by selecting young queens, and spreading the brood. The following year he was able to show 120 lbs. in two supers from one hive worked on the above plan.

About this time he turned his attention to the honey-extractor, and up to the present time he has introduced thirteen different forms of it; the most popular are the Amateur, the Rapid, and the Automatic. In the year 1878 Mr. Cowan built his present residence, Comptons Lea, near Horsham, whither he transferred his apiary, and is now in the possession of about twenty stocks. His bees are all Ligurians and Cyprians. Mr. Cowan advocates the cultivation of buckwheat and other bee-plants; and in 1871 by this means he was able to obtain an average of 100 lbs. of comb-honey in sections per hive. Mr. Cowan was the first to take the prizes offered for sectional honey at the Show at Alexandra Palace. He is the author of *Wintering Bees*, and of that valuable handbook, the *British Bee-keepers' Guide Book*. He is member of several scientific societies. Mr. Cowan has served upon the Committee of the British Bee-keepers' Association since its commencement in 1874, and has been the Chairman since 1878, in virtue of obtaining its largest number of votes at each successive election. Mr. Cowan is also a prominent member of the Sussex Bee-keepers' Association, and its formation is mainly due to his exertions.

USEFUL HINTS.

Let Well Alone.—Stocks that are known to be well supplied with food need little attention at present, and beyond an occasional searching with a bent wire to clear the floor-boards, will be better if left undisturbed. The wire to use on such service should be thin, but strong, and shaped like a letter L with a long perpendicular, so as to reach all round the hive floor; but the bottom bend should only be of a length to permit of easy withdrawal through the entrance-way. A steel rib of an old umbrella will do well if heated at one end.

Cleaning Floor-boards in Winter.—By using a hook of the shape described above, good service can be rendered to the bees, and much life saved. As with humans, the presence of the dead in the domiciles of the living is most disagreeable to bees, and they take every opportunity, often too in dangerous weather, to cast them forth from their hives, many of the living perishing from exposure through being unable to extricate themselves from their dead burdens. In very cold weather the bees often attempt to clear their hives of the corpses of their fellows; but through its intensity, or through their own weakness, which means, generally, lowness of temperature within, as well as outside the hive, they are often only able to thrust them just outside the entrance, where their presence on the alighting-board should suggest the use of the searching wire. If in passing the wire over the floor-board healthy, living bees are disturbed, and they show peppery activity, it may be fairly concluded that they can take care of themselves, and only the entrance-ways need be diligently kept clear; but if with the dead, dying bees are also withdrawn by the wire, it may be assumed that they are suffering from hunger or disease, and should be treated accordingly.

Entrance-gates for Winter.—Although these have their uses they are likely to cause mischief unless frequently examined and cleared of dead bees and the *débris* from the hives. The form of gate described in the December *Journal* has been on trial during the past month in a large apiary at Edgware, where the death of the owner caused neglect of the above precaution, and in several instances the hives were quite blocked with dead, and there was not one instance in which the narrow passage-way was quite free. In all cases there should be room for two bees to pass, or when one is lugging out another there will surely be a blockade. The best form of shield against light and snow in that apiary was in the form of a hinged porch piece, which, when unsupported from below, leaned on to the alighting-board at a distance of about two inches from the hive front, leaving easy means of exit at both ends, while in the front opposite the entrance-way there were two or three half-inch archways cut out of the lower (the normal front) edge of the porch piece, which gave easy access to bees alighting at their usual 'pitch.' With such protection there is the minimum of danger and the greatest efficiency.

Bees that are Dying.—Should the searching-

hook discover bees in the condition described above, *i.e.*, apparently dying on the floor-board, it may at once be concluded that they need help, and, pending further consideration, it will be quite safe to stop the hive entrance, and carry them into a heated room, and to supply them with some fresh, warm syrup; so that should starvation be the cause they may get immediate relief, and be enabled to generate life-giving heat to the whole interior of the hive. To assist in bringing about this desirable end the hive might be placed near a fire, or set above the hot plate of a kitchener until the bees show signs of returned life, when they should be returned to their stands, that they may gradually cool down, during which process the survivors will pack themselves afresh into winter-quarters. When quite quiet the hive-entrance should be unstopped, and the non-surviving bees removed with the searching-hook; and to prevent future starvation a slab of sugar-cake should be slid between the frame-tops and the quilt, or if the bees be in a skep, it should be put over, or into, the feed-hole, and in either case well covered up.

Should the moribund condition of the bees be due to disease they will be found distended with fæcal matter, and will require an opportunity for flight, which, if the weather will not permit, must be provided for them artificially, or they will get from bad to worse, and will soon perish entirely.

An Artificial Flight.—Dysentery is the only winter disease known amongst bees, and is produced by their partaking of food which disagrees with them, by cold and dampness, or by over long confinement through stress of weather. Now, from long observation, it has become a settled question in my mind that bees cannot void excreta naturally except when on the wing, and, as is well known, unless the weather is mild, they cannot venture abroad with any hope of returning, and, consequently, the desired flight is often delayed until the disease takes very serious form, and bees actually burst in the hive, fouling the combs and smearing their fellows with noxious matter. Sometimes the instinct of cleanliness, or sanitation, induces them to creep from the hive even in very cold weather and attempt to fly, to fall however from the alighting-board to the ground and perish there, and who as a bee-keeper has not seen a heap of dead, many of them stained with filth, lying in front of a doomed hive? But how very few have observed that distended bees in the act of falling, which gives motion to the wings, get the relief demanded even though the coldness of the ground and the chilliness of the atmosphere prevent their rising again and re-entering the hive? It is because a flight, or even a fall, is necessary to bees in a dysenteric condition before they can possibly regain health that so few stocks in that state recover during winter; and it is on that ground I always advise the prevention of dysentery, which is easy, by timely precaution, and an 'artificial' flight, as tending to its cure when it has set itself up in a neglected hive. In a general way, an opportunity for flight may be created by placing a glass box in front of the hive for the bees to play in, and putting the whole in a heated room with a strong light will tempt the bees to leave their combs and fly. After a time it should be carried to a dark cellar till those that are able to do so have returned to their winter nest, when the hive may be restored to its stand and its floor-board cleared with the hook as before suggested. Bees in hives of the Combination class may have a flight-place provided in the rear of the hive by simply covering it with glass, when, if the dummy in rear of the combs be raised a little, and other conditions be similar to those above stated, they can take their airing with very little trouble to their owner. To further stimulate and help the bees while under the above treatment, a bottle of warm salicylised syrup should be given to them, and it would tend to dissipate one of the causes of disease (viz. dampness) if the hive were set near a fire, that it might be thoroughly warmed through.

Preparation for Spring.—It may appear early to write of spring preparation ere the breath of Christmas is cold; but there are so many things to be remembered, and bee-keepers have so little spare time, that a reminder, it may be hoped, will not be considered out of place. February will soon be here, and then preparation must begin in earnest; in the meantime there are many little things that should now engage attention that will then be required. Where there will be a poor supply of early natural pollen, as from crocuses, arabis, laurustinus, willows, almonds, box, and the like, pea-flour should be provided as a substitute, and vehicles provided in which to administer it to the bees. Those who propose to give flour-cake instead of simple pea-flour should prepare a quantity at once, and store it in a dry box, for, unlike barley-sugar, it will keep without being hermetically sealed. Those who are not supplied with hives, sections, honey jars, feeders, and the various other desiderata to perfect readiness, should lose no time in arranging for their delivery. Last year a note of warning was given in this regard, but was little heeded, and great disappointment was the result, sections being at a premium. It is a matter worthy of consideration by bee-keepers, that many who cater for them have not unlimited capital or space at command, and can neither afford to purchase nor keep a large stock of goods on hand, and that is really to the advantage of the former to make their wants known early.—C. N. Abbott, *Southall, Middlesex.*

Foreign.

GERMANY.

After a very mild winter our colonies were strong and healthy in the beginning of March, but owing to the very unfavourable weather in the month of April up to the middle of May they were at that time scarcely any stronger. Nevertheless, some swarms issued at the end of May and at the beginning of June. As my colonies were very strong I permitted them to swarm, and I made artificial swarms as fast as I could, and that was satisfactorily accomplished. On the 9th of June rain and cold winds brought swarming to an end. Out of my 105 colonies I had then some thirty or forty left which had not swarmed or which had not been divided. But though

I was obliged to feed my natural swarms as well as my artificial ones, I was nevertheless well pleased to have got them so early. The feeding of my young swarms (the old mother-colonies did not need feeding) was an easy matter, as I was able to insert in every one a comb of good capped heather honey, preserved from the previous year. From the 18th of June we had for some time the finest weather for bees. Cornflowers, acacia, and other flowers yielded much honey. My young swarms filled soon eight or ten frames with the nicest combs, and these partly with honey. I say nothing of the honey colonies and the old mother colonies; honey colonies I call such as I do not allow to swarm, though they are very strong, and only are on the outlook for honey from spring to autumn. Such a colony gave me in the best honey-year we ever had in Brunswick—120 lbs. of extracted honey.

I extracted this year up till the end of June, from all my colonies, 1500 lbs. of honey. But the honey-flow did not last very long, and all such bee-keepers who did not get early swarms or who did not make artificial swarms till the 9th of June, have not obtained any surplus honey in June and July; their swarms came too late even for the fall harvest from buckwheat and heath (*Erica vulgaris*). Our old German bee-keepers have a common proverb:—

'A swarm in May,
A cart-load of hay;
A swarm in June then,
A fat hen;
A swarm in July,
A fly.'

And I must confess this hits the top of the nail. Every bee-keeper in Germany who got his swarms (natural or artificial) in the month of May or till the 9th of June, has had a good honey harvest, while he who got his swarms after the 18th of June and his casts in July, has had only bees, but not a honey-harvest. Those bee-keepers who travelled with their bees to the buckwheat fields and to the heath have reaped some honey, at least food for wintering their bees. All the German bee-keepers who have travelled with their colonies and who had got their swarms early, have had a good honey harvest, not only in the month of June, but also from buckwheat and heath, notwithstanding the bees had only a few fine days in the fall to gather honey.

I myself travel with my bees every year on the first of July to the buckwheat fields, and in the beginning of August to the heath, some thirty to forty miles, to the province Hanover, and double in this way my honey harvest.—C. F. H. Gravenhorst, *Brunswick, Germany.*

FRANCE.

The municipal laboratory for the analysis of the solid and liquid food sold in Paris is issuing a series of reports which show that nearly every article of consumption is more or less adulterated. It is specially pointed out, however, that, so far, sugar and honey constitute an exception, these two articles having apparently hitherto escaped the fraudulent devices of dishonest traders.

ITALY.

The *Apicoltore*, commenting on the recent visit of Chevalier Charles Gatter, congratulates Austrian bee-keepers upon the liberal amount of patronage which they receive from the Austro-Hungarian Government, and draws a comparison between it and the scanty support which Italian apiculturists receive from their Ministry for Agriculture and Commerce.

The maker of a particular feeder specially adapted for assisting stocks in winter writes to the same journal to the effect that, judging from the numerous orders received for his apparatus in the course of last autumn, feeding must have been very general in upper and central Italy, no less than in the Tyrol, Switzerland, and France.

The Rev. Giotto Ulivi has of late published a new and revised edition of his *Compendio Teorico-pratico d'Apicoltura Razionale*. The book has been favourably received by the numerous admirers of the 'Giotto' principle, so well known in almost every country in Europe. It consists of 167 pages and 28 illustrations, five of which represent the 'Giotto' hive in its various forms.

SWITZERLAND.

In consequence of an arrangement made between the editor of the *Bulletin d'Apiculture* and the Société Romande d'Apiculture, the members of the latter will receive the above paper, paying a special subscription for the same.

AUSTRIA.

Chevalier Charles Gatter, Editor of the *Bienen Vater*, published at Vienna, has just completed an apicultural tour through Italy on account of the Austrian Government.

AMERICA.

A Texas Apiary.—An Illinois correspondent of the *American Bee Journal*, who was recently in Texas, writes from Allen that he visited the apiary of Judge Andrews at that place. He says: 'I did not journey in vain, for his apiary is a grand sight. He seems to be personally acquainted with his bees in each colony, and speaks of his queens as a good farmer does of his cattle. He has over 200 colonies of pure Italians, for which he claims two particular points of merit, beauty and docility, and I can vouchsafe for the latter, as I waded through a perfect forest of hives and never received a sting. He extracts honey with a machine of his own invention, and his harvest this year is immense.'

Wintering Bees in Clamps.—'I had such good success in wintering my bees in clamps last winter, that I shall bury at least twenty-five colonies the coming winter. Upon a dry sandy hill I dug a trench six feet long, two feet wide, and two feet deep; this trench I filled up with straw, I then laid sticks across the trench, and upon these sticks I placed the hives. The bottom-boards of the hives were removed, I then built a pen of rails, and pieces of rails around the hives. The space between the hives and the sides of the pen was about one foot. This space was filled with straw, and straw was also placed over the hives to the depth of one foot, rails were then placed over the straw that covered the hives, and the whole pen was then covered with straw to the depth of one foot. Earth was then thrown on to the depth of about eighteen inches. No holes were left for ventilation.—W. Z. Hutchinson, in the October number of *Gleanings in Bee Culture.*

The California Honey Product, Past and Present.—The yield of the present season has been very light, and confined to warm locations quite remote from the sea-coast, the warm canyons being most favoured, and even in these localities the secretion did not appear until July. The statement of Mr. McCaul, as to the cause of the frequent failures to produce honey in this section, were frequent fires and pasturage of the bee-ranges by herds of sheep. Our experience differs with this, as only one year is lost and the bee-range is improved by fire. Then the sheep do very little damage to a good bee-range, as the surface of the mountain is so rough that it produces no grass, and is not approachable by sheep or any animal, except now and then a deer or grizzly bear. The true causes of our failure he did not discover.

In 1877 we had only 4·35 inches of rainfall, and, as a consequence, had no flowers to secrete anything. In 1878 our rainfall was over 20 inches. Cold weather continued until June, when favourable weather set in, and we produced over 200 lbs. to the colony that year. In 1879 we had nine inches rainfall, followed up with cold weather during the whole honey season; the entire

country was a sea of blossoms, but lack of moisture and unfavourable weather prevented secretion, and we made no surplus. The year 1880 we had over 20 inches rainfall, but the weather remained cold so late that it was a good year for increase, but below an average for surplus honey. In 1881, with 12 inches rainfall and cold weather, notwithstanding our bee-ranges were covered with bloom, we had no secretion of any importance during the entire honey season, and, as a consequence, made no surplus. The present year, with 10 inches rainfall and cold and unfavourable weather, with abundance of bloom of every kind, we had no secretion until after July 1st. Our bees did well in warm locations, and produced from one-fifth to one-sixth of a crop, taking the county over.

A careful review of the causes of our failures to produce honey every year will be found to be lack of moisture and unfavourable weather, and not frequent fires and herds of sheep.

The question of sowing seeds of honey-producing plants looks well on paper; but to the honey producer, who looks to the high, rugged, rocky, and almost inaccessible mountains for his forage, it looks very unreasonable. The bee-keeper who has rolling hills, with good soil, might cultivate honey-producing plants; but the bulk of the honey produced in southern California must come from the high, rocky mountains, and from wild, indigenous shrubs and plants.—*Pacific Rural Press.*

BEES AND FLOWERS.

Bees and flowers are inseparably connected. Associated in sentiment, it was assumed that the nectarous flowers gave their sweets to the insect in perfect freedom, and out of their abundance; but modern teaching has satisfactorily shown that the benefits conferred are reciprocal, that while the bee gathers the floral sweets, flitting from flower to flower, it effects an important purpose by carrying the pollen-grains from one plant of the same genus to another, and, by thus effecting cross-fertilisation, secures to the plant prolonged vigour and vitality in its progeny.

Amongst the multitude of plants that adorn our gardens or brighten our fields and wastes, there are some that are especially sought out by bees as affording them the best and purest food; and coincident with the extension of bee-keeping, endeavours should be made in each locality to ascertain the relative value of honey-yielding plants, either native or exotic, and to increase them in due proportion. When nature has been so prodigal it may seem to some a needless and unnecessary labour, but it will not be found so. It must be remembered that large numbers of useful bee-flowers have been banished by the plough and the spade. Native plants are weeds to the farmer, and the more highly cultivated the district the more restricted and poor becomes the bee-flower. One proof of the value of wild-flowers is, that bees are observed to store honey more abundantly when within easy reach of rivers or brooks, on whose banks flowers are abundant, and also when they are near waste land, where native plants grow in undisturbed freedom. There is, however, compensation in some highly-managed districts, especially where large areas of turnips are grown for seed, or the different kinds of Brassica, or mustard, or other cruciferous plants, occupy the land. The bean-fields in their season afford great supplies of honey, and meadow and pasture land, rich in white clover, give an opportunity of adding greatly to the luscious store of the bee. But there are seasons when such sources of obtaining food are unavailable; and it is to fill up the intervals between the important field crops I have mentioned, and to secure an uninterrupted succession of flowering plants from which bees may profitably derive their food, that our efforts should be directed.

Cultivating an extensive collection of hardy plants, and having devoted some little attention to those kinds that seem most attractive to bees, I hope to be of service to my bee-keeping friends by giving, in each succeeding month, the names of the most useful bee-flowers, with some instruction with regard to their mode of propagation and cultivation, so that in time we may fill up the little flowerless intervals with honey-bearing blossoms.

The weather that invites the appearance of early flowers influences the bees, which are glad of the opportunity of leaving the hive for a short circling flight as soon as a few gleams of spring sunshine vivify the air, and we may be sure that the few vernal flowers that present themselves are welcome, and immediately visited. The first to appear are the following:—Eranthus hyemalis (the winter aconite), Helleborus niger, and H. orientalis, the Snowdrop, Tussilago fragrans, the Russian violet, Crocus imperati, and with the shelter of a wall the winter Honeysuckle (Lonicera fragrantissima), Chimonanthus fragrans, Jasminum nudiflorum.

Although all these are interesting and useful especially to the amateur gardener, there are few apiarians, perhaps, who have the space and opportunities for planting the whole of them. There are two, however, which would well repay their introduction in the immediate neighbourhood of bees, these are Eranthus hyemalis and Helleborus niger—plants of easy growth and of hardy constitution—the flowers of which are eagerly sought for by bees, on their first flight in the opening spring.

Those who are interested in providing honey-yielding plants for the early months of the year, and have failed to make plantations, may still do so in the case of the following eminently useful kinds:—Arabis albida, Aubrietia graeca, Wallflower (the early yellow variety is the best), Erica carnea, Limnanthes Douglasii. In all cases for blooming purposes the same season, rooted plants should be put in. To rear for another season slips, or cuttings, or seed, may be set or sown later in the spring.—W. Ingram, *Belvoir.*

OBSERVATIONS ON BEES.

By Sir John Lubbock, F.R.S. M.P., F.L.S.

Sir John Lubbock has for many years been engaged in making minute observations on the habits and instincts of bees, wasps, and ants. The principal object of the experiments conducted by Sir John seems to have been to ascertain to what extent these insects had the ability of communicating to each other information of occurrences, and also whether they possessed the power of distinguishing colour and sound. From time to time we have published in the *Journal* abstracts of his papers; but as these have been for the most part of a very meagre

character, it has been considered desirable that the whole of his 'Observations' should find a 'local habitation' in our pages. We have therefore much pleasure, with the author's kind permission, in transferring to our columns that portion of his 'Observations on Bees, Wasps, and Ants,' which relates to Bees. The 'Observations' have appeared from time to time in the pages of the *Journal of the Linnean Society*.—Ed.

It will be observed that the current statements with reference to the language of social insects depends much on the fact that when one of them, either by accident or in the course of its rambles, has discovered a stock of food, in a very short time many others arrive to profit by the discovery. This, however, does not necessarily imply any power of describing localities. If the bees or ants merely follow their more fortunate comrade, the matter is simple enough; if, on the contrary, others are sent, the case becomes very different.

In order to test this, I proposed to keep honey in a given place for some time, in order to satisfy myself that it would not readily be found by the bees, and then, after bringing a bee to the honey, to watch whether it brought others, or sent them—the latter of course implying a much higher order of intelligence and power of communication.

I therefore placed some honey in a glass, close to an open window in my sitting-room and watched it for sixty hours of sunshine, during which no bees came to it. I then, at 10 o'clock in the month of June, went to my hives, and took a bee which was just starting out, brought it in my hand up to my room (a distance of somewhat less than 200 yards), and gave it some honey, which it sucked with evident enjoyment. After a few minutes it flew quietly away, but did not return; nor did any other bee make its appearance. The following morning I repeated the same experiment. At 7.15 I brought up a bee, which sipped the honey with readiness, and after doing so for about five minutes flew away with no appearance of alarm or annoyance. It did not however return; nor did any other bee come to my honey.

On several other occasions I repeated the same experiments with a like result. Altogether I tried it more than twenty times; and I am satisfied that these bees cannot all have lost themselves or met with accidents. Indeed I never found bees to return if brought any considerable distance at once. By taking them, however, some twenty yards each time they came to the honey, I at length trained them to come to my room. On the whole, however, I found it more convenient to procure one of Marriott's observatory hives, both on account of its construction and also because I could have it in my room, and thus keep the bees more immediately under my own eye. My room is square, with two windows on the south-west side, where the hive was placed, and one on the south-east. Besides the ordinary entrance from outside, the hive had a small postern door opening into the room; this door was provided with an alighting-board and closed by a plug; as a general rule the bees did not notice it much unless the passage was very full of them.

I then placed some honey on a table close to the hive, and from time to time fed certain bees on it. Those which had been fed soon got accustomed to come for the honey; but partly on account of my frequent absence from home, and partly from their difficulty in finding their way about, and their tendency to lose themselves, I never could keep any marked bee under observation for more than a few days.

Out of a number of similar observations I give the following in detail, as throwing some light on the power of communicating facts possessed by the bees; they will also illustrate the daily occupations of a working bee.

August 24. I opened the postern door at 6.45 and watched some marked bees till the middle of the day.

Bee No. 1.

6.50.	One came to the honey. She then flew to the window, but after buzzing about for some time, returned to the hive.		
7.21.	Back to honey.	7.23.	Back to hive.
7.26.	,,	7.30.	Flew to window and then fell on the floor. I was afraid she would be trodden on, so at 7.15 I showed her the way to the hive.
8.40.	Back to honey.	8.45.	Back to hive. I now closed the postern door till 10.15.
10.35.	Back to honey.	10.39.	To hive.
10.45.	,,	and then	to hive.
12.35.	,,	12.37.	To hive again.

Bee No. 2.

7. 0.	She came to the honey.	7. 5.	She went back to the hive.
7.12.	Back to the honey.	7.22.	,,
7.24.	,,	7.30.	,,
7.42.	,,	7.46.	,,
7.52.	,,	7.57.	,,
8. 5.	,,	8. 9.	,,
8.15.	,,	8.20.	,,
8.26.	,,	8.30.	,,
8.40.	,,	8.44.	,,
8.55.	,,	9. 0.	,,

I then closed the door till 10.15; at 9.5, however, she came round to the honey through an open window, but could not find her way back, so I had to put her into the hive.

10.15.	Back to the honey.	10.17.	She went back to the hive.
10.20.	,,	10.23.	,,
10.30.	,,	10.33.	,,
10.50.	,,	10.55.	,,
11. 1.	,,	11. 6.	,,
11.17.	,,	11.23.	,,
11.33.	,,	?	,,
11.45.	,,	11.50.	,,
12. 0.	,,	12. 3.	,,
12.10.	,,	12.15.	,,
12.24.	,,	12.30.	,,
12.37.	,,	12.43.	,,
12.52.	,,	12.56.	,,

Bee No. 3.

Also on August 24th.

10.16.	Came to honey.	10.19.	Returned to hive.
10.30.	,,	10.34.	,,
10.55.	,,	10.57.	,,
11. 2.	,,	11. 5.	,,
11.11.	,,	11.15.	,,
11.24.	,,	11.27.	,,
11.35.	,,	11.37.	,,
11.45.	,,	11.47.	,,
11.57.	,,	?	,,
12.13.	,,	12.16.	,,
12.26.	,,	12.30.	,,
12.36.	,,	12.42.	,,
12.56.	,,	12.59.	,,

The next day I timed this bee as follows:—

7.23.	Came to honey.	7.25.	Returned to hive.
7.35.	,,	7.37.	,,
7.44.	,,	7.45.	,,
8.10.	,,	8.12.	,,
8.53.	,,	8.55.	,,
	(The door was then closed till 9.30)		
9.35.	,,	9.40.	To window, and at 9.49 to hive.
10.	,,	10. 5.	Returned to hive.
10.13.	,,	10.15.	,,
10.22.	,,	10.26.	,,
10.35.	,,	10.40.	,,
10.45.	,,	10.48.	,,
10.56.	,,	?	,,
11. 7.	,,	11.12.	,,
11.18.	,,	11.20.	,,
11.35.	,,	11.37.	,,
11.47.	,,	11.51.	,,
12. 2.	,,	12. 6.	,,
12.25.	,,	12.29.	,,
12.51.	,,	12.54.	,,

August 26. Opened the postern at 6.30.

6.45.	The same bee as before came to the honey . . .	6.47.	Back to hive.
6.58.	She returned to the honey.	7. 0.	
7.23.	,,	7.25.	,,
7.32.	,,	7.35.	,,
7.45.	,,	7.48.	,,
7.55.	,,	7.59.	,,
8. 4.	,,	8. 7.	,,
8.19.	,,	8.22.	,,
8.39.	,,	8.43.	,,

During these observations scarcely any unmarked bees came to the honey.

In these cases, the postern being small, and on one side, was not very easily found. If the honey had been in an open place, no doubt the sight of their companions feasting would have attracted other bees; but in this case the honey was rather out of sight, being behind the hive-entrance, and was moreover only accessible by the narrow and winding exit through the little postern door. But however exposed the honey might be, I found similar results, unless the bees were visible to their fellows. Thus on the 2nd, 3rd, 4th, and 5th October two or three marked bees were paying regular visits to some honey in my sitting-room; but during the whole time very few unmarked bees came to the honey.

(*To be continued.*)

THE CONSTRUCTION OF THE BEE-CELL.

In the November number of *Good Words*, there is a very able article on 'Bee Life' by the Rev. J. G. Wood, who mentions the 'pressure theory' as unsatisfactory and incapable of proof. The 'pressure theory' is that the bee-cells are first circular, and are made hexagonal by pressure; and Mr. Wood wishes to know how this will account for the three diamond-shaped plates which form the base of the cell. The bee-cell is not a cylinder with a flat base, but the base is formed of a hemisphere, with a diameter equal to that of the cylinder; and this when subjected to pressure will form the three diamond-shaped plates.

Every schoolboy knows that cylinders of any soft substance when pressed together will form hexagons, and taking the high temperature of the hive during comb-building, the wax is quite plastic enough to prevent its being broken by the pressure of the bees, and in handling newly-made combs the wax bends considerably before it breaks. Now if the bees built their cells hexagonal originally,—and we may remark, by the way, that though we have kept bees for nearly twenty years, we have never seen a 'beginning of comb' like that figured on page 744 of *Good Words*,—we should expect to find the side of one cell acting as the side of the adjoining cell; but this is not the case, as each cell has its walls separated from the adjoining cells.

Now in an Observatory hive which was made, regardless of the $\frac{5}{16}$-in. bee-distance, there was too much space allowed between the sides of the comb and the glass sides, and the bees began to fix a spine of comb to fill up the interspace, and this spine, fortunately for the proving of the 'pressure theory,' was begun on one of the glass sides; and so we seized the opportunity of watching the formation of the cells, and the following is the result of several hours of careful watching.

The bees began by fixing the wax to the glass, and an incomplete cell was formed, not quite in the middle line of the spine, but cylindrical in shape, with a hemispherical base, the glass preventing the full completion of the cell. The bees then built cells on either side of the first cell, cells No. 2 and No. 3 being nearly opposite to each other; but cell No. 1 not being built in the exact middle, the succeeding cells gradually approached to the normal condition, that is to say, the centre of one cell on one side was the junction of the two cells on the other side. In each case there was an interspace left between the cells, and the glass prevented these being pressed together; but even with this obstruction the bases of the cells, which were hemispherical at first, gradually approached the diamond-shaped base, those being more perfect the later they were made. The bees were continually biting off pieces of superfluous wax from one cell to build the adjoining one, or, as it seemed to us, helping the 'pressure theory' by removing the wax, which was not needed, owing to the equal pressure being prevented by the interposition of the glass.

As we have not those celebrated eyes, which Mr. Samuel Weller was also unprovided with, we have not been able to watch the building of comb in the ordinary way, but we presume that what is true in one case will be true in the other.

If bees are so enamoured of the hexagon, why do they make an exception in building queen-cells, which are much nearer the cylindrical form? And why in these cells which are formed on the outside of combs, or, as happened in one case, on one side of the top bar of a frame a solitary cell was begun, is the shape irregularly cylindrical?

Whether the bees build their cells hexagonal or cylindrical is not of much practical interest except to those who take a scientific interest in bee-keeping; but we venture to hope that bee-keepers will publish in the *Journal* their views on the subject, for as not even the youngest of us is infallible, the tendency of a bee-keeper's mind is to make his experience support his theory; and so we are quite resigned to seeing our theory disputed, and our facts disbelieved.—GEORGE WALKER.

THE CONSTITUTION OF HONEY, AND THE NATURE OF STIMULATING FOODS.

Having promised to fill a corner in the *B. B. Journal* in its new departure, I looked over some of the later numbers, which I had not before seen, in order that I might attack a subject which would have some connexion with or relation to what had gone before. I then noticed that at page 146 our friend, Mr. Henderson, takes exception to the advice I have given in the *Handbook* respecting wintering, and asks that the matter be reconsidered. As his opinions, as stated, seem to rest upon what I cannot but regard as three misapprehensions, I do not think I can do better than endeavour to point out wherein and why I differ from him, explaining also some philosophical and physiological points touching the whole question of feeding.

The passage criticised occurs in the chapter on Winter Feeding and is as follows: 'That if feeding be then necessary barley-sugar and flour-cake can alone be given with safety.' Mr. Henderson's contention in few words appears to be this. That barley-sugar is non-nitrogenous, and therefore harmless; but that flour-cake is nitrogenous, and therefore 'injurious to the welfare of the hive. The queen is stimulated at a period when rest and quietness should pervade the hive, eggs are deposited, the bees do not sufficiently answer to the call, the brood is not matured—it becomes chilled, and if not attended to promptly the most deplorable consequences will result.' And, further, the bees may be induced to raise brood which they cannot adequately nourish and bring to perfection. I am sure these statements have been made in that spirit of friendliness which I wish to pervade my reply, but which must take the form of a denial of each of the three preceding averments. My position is as follows:—

1. Flour-cake is not a stimulating food as it is recommended to be given.

2. The queen is not directly stimulated by any system of feeding.

3. No method with which we are yet acquainted will enable us (without direct interference with the combs) to induce bees to raise dangerous quantities of brood in the winter.

In support of the first position, it seems hardly needful to say more than that liquid syrup stimulates while barley-sugar does not. The reason is not far to seek. With pollen in store and syrup supplied bees have all that is absolutely requisite for brood-raising, viz., water, sugar, and pollen; but if barley-sugar be given, the essential water being absent, brood is not raised, or rather brood is not raised in consequence of the barley-sugar feeding. The same will hold true with regard to flour-cake, the absence of water prevents excitement, and brood during winter is no more raised in consequence of its presence than it would be by the presence of sealed honey, with-

out which, I suppose, Mr. Henderson would not recommend that we should attempt to winter. If a warm spell comes fairly strong stocks will often start considerable patches of brood, and, indeed, again and again I have had occasion to note wide breadths of larvæ and pupæ raised from eggs that must have been deposited during the severest frost, and that without the presence of any food beyond the natural stores the combs contained. The disposing cause in this case is probably the removal of much honey from the front portions of cells containing pollen which has thus become exposed; but this pollen is found wetted and in large part fitted for the formation of the larval food. But how widely different is the case with flour-cake, where much water is needed before it can be sucked down at all. The whole matter is in a word this—either honey or pollen (or a substitute for either) may stimulate if its acquisition be easy and rapid, but that neither will induce wide brood-raising unless water be also present or easy of access.

It may now be asked me why I have suggested flour-cake as an admissible winter food. The answer is, that syrup is not in itself a sufficient diet. While bees are in repose they need no more than sugar, which dissolved in their fluids is slowly oxidized by the entrance of air through their spiracles. This food is converted in carbonic anhydride and water, and no fæcal matter by it is produced; but it must not be forgotten that some amount of muscular effort is of necessity put forth at intervals, every movement is attended by muscle waste, and although sugars are sources of energy when assimilated, yet exertion is accompanied with oxidation of nitrogenous substance; and hence bees should have the liberty of taking nitrogenous food, otherwise exhaustion must in lesser or greater degree follow. This condition is absolutely met by honey, which is always slightly nitrogenized by the presence of pollen. A microscopic examination of even the clearest specimen will reveal this. If honey be taken thinned with water, and allowed some days to settle, and the deposit be placed on a glass slip, an inch objective will reveal a crowd of pollen granules immediately, while a large number of other granules will be discovered floating on the top.

In this connexion it is highly curious to note that some flowers so yield their honey that but small opportunity is given to the accidental mingling of pollen with it, while in other cases this mingling must always occur. In most labiate blooms, for example, the pollen is so transferred to the body of the bee that it cannot be packed into the baskets (*corbiculæ*). In *Nepeta cataria* the anthers stand close up under the vexillum of the bloom, and the pollen is made to adhere to the top of the head of the honey-gatherer, to be by it carried to the next bloom for its fertilization; from this position the bee cannot remove it. In *Salvia officinalis* and *glutinosa*, like many others, it is quaintly popped on to the back, where the bee cannot reach it, so none of it is packed on the legs, and but little carried to the hive. In the heather (*Erica cinerea*) the pollen is also placed untouchably on the head. Clover in like manner is so formed that pollen cannot normally reach the bee's tongue. Honey gathered from the before-mentioned plants has in consequence great clearness, because of its freedom from pollen grains, but the *Rosaceæ*, to which the apple, the pear, the plum, raspberry, &c., belong, with their numerous anthers, wide-cupped corolla, and comparatively exposed nectary, necessarily so shed their pollen that much of it falls into contact with the exuding honey, and so must be gathered mingled with it. Here we see the cause of the cloudiness of fruit-tree honey, which has led bee-keepers to regard it as inferior, although for brood-raising purposes it is decidedly superior to the clearer honey of (say) heather or clover. The gathering of the heather harvest is commonly supposed to be unusually exhausting to the little industrious foragers, and may not the reason lie (it is a suggestion merely) in the honey not containing nitrogenous material in sufficient quantity to make good the involved waste?

The next points involve so much that is interesting that I have determined to expand them in the next issue, sufficient space not being at my disposal in this.—F. Cheshire, *Avenue House, Acton*.

SECRETION OF WAX.

The following article on the secretion of wax, translated from Herr Vogel's work *Die Honigbiene* by my friend Mr. Dieck, seems to me to contain so much that is instructive, that I am induced to place the same before the readers of the *British Bee Journal*. Although the novel theory therein advanced may not find ready acceptance, a new train of thought on this very interesting subject is calculated to have its use in the minds of English bee-keepers.—Alfred Neighbour.

People unacquainted with bee-keeping frequently mistake the small pellets carried home by bees on their hind legs for wax, of which their combs are constructed. Bee-keepers, however, know that these pellets are pollen, which substance, when heated, does not, like wax, pass into a liquid state.

There are, of course, some plants that secrete wax which is collected and used by man, and is called vegetable wax: but bees do not gather vegetable wax, and do not employ it in the construction of their combs. The material of which combs are made is bees-wax. But how does this substance originate? It is the almost universal opinion that bees-wax is a product of the body of the bees. In order to produce wax, it is said, the bees take more honey and pollen into their stomach than is necessary to maintain the vital processes, the excess of the chyle produced being converted into wax. According to this view, the chyle has undergone further digestion, and is capable of no further impression. A colony without pollen, and unable to procure any, if supplied with plenty of honey, will make an ounce of wax from about sixteen to eighteen ounces of honey, while the same quantity of wax will be secreted from about fifteen ounces of honey if, at the same time, the bees have a supply of pollen. The bees, therefore, consume a very considerable quantity of honey in the production of wax, and still more if they have no pollen. They are not able, however, to permanently prepare wax from honey alone, for if pollen be wanting they soon leave off taking food altogether, their bodies swell, and they drop upon the floor of the hive and die. An explanation of this is easily given. In the production of wax the bee wears out its strength, and its body not being supplied with nitrogen, which is the chief constituent of pollen, it very soon dies; whereas bees which feed upon honey and pollen produce wax, and continue in good health.

The more plentifully bees are supplied with pollen in addition to honey, the less honey they consume to produce wax, and the greater the quantity of wax obtained. From this it is obvious that pollen contains particles which serve in the production of wax. We recognise this fact quite plainly when a colony which has no pollen, and is unable to procure any, is fed on a solution of sugar. If the bees have expended all the food that has passed into their stomach before commencing feeding on sugar, they produce no wax, however plentiful the supply of sugar may be, and they very soon die off; but if a colony provided with pollen or able to collect it in abundance be fed on a plentiful supply of dissolved sugar, the bees produce wax, though not, perhaps, as much as a colony amply provisioned with honey in addition to pollen. The bees are unable to prepare wax from dissolved sugar without pollen, because sugar does

not contain any wax, and the bees are unable to convert sugar into wax without a supply of pollen. Honey and pollen contain wax in infinitely small particles, and the body of the bee simply separates from these substances the wax eliminated by the plants from which honey and pollen have been collected. Wax, therefore, strictly speaking, is not a product of bees, but of plants, the bees merely separating the wax contained in the honey and pollen. An example will make this plain. The cow produces milk, in which fat-globules are floating. Churning, however, does not generate butter, it only unites into a coherent mass the minute particles of butter contained in the cream of the milk. *The relation of the cow to the butter is the same as that of the plant to wax.* As pollen also contains particles of wax, the largest quantity of wax is made by bees during the time when there is plenty of pollen to be collected in addition to a good honey gathering, as, for example, when the rape is in flower. Late in the summer and in autumn when plants are no longer in blossom, and when pollen is scarce, though there is still plenty of honey to be found, wax is produced very sparingly, or the production ceases altogether.

Every animal requires a certain quantity of food in order to sustain life and to continue capable of performing work. This is called the Erhaltungs-food (life-sustaining food). If a cow is to give milk, or a bee to prepare chyle and to produce wax, more food than the life-sustaining food is required, and this extra food is known as Erzengungs-food (productive food). Bees are not voracious insects, on the contrary they only consume that amount of food which is absolutely necessary for the support of life and to enable them to perform work. During the time, therefore, that bees neither prepare food for their brood, nor produce wax, the consumption of food is very small. But as soon as wax-making commences, they consume in excess of the life-sustaining food, and secrete wax from this food as well as from the Erzengungs-food. It follows from this that when bees are not building comb they are obliged to get rid, as excrementitious matter, of the wax contained in their food. The bees which prepare food for the brood also produce wax, but if no necessity exists for the production of wax, the wax contained in the food consumed by these bees is got rid of with their other fæces. It need not, therefore, surprise us to find that bees secrete wax when, in exceptional cases, they are obliged to consume large quantities of food, for example, in order to produce heat. This fact has given rise to the supposition that the production, or, more correctly speaking, the secretion, of wax is an involuntary act of the bee, *i.e.* the supposition that in consuming honey and pollen as food for themselves or for the preparation of chyle, bees secrete wax simultaneously as a secondary product.

From an exceptional case, however, we cannot draw a rule. It is the rule that bees produce wax from necessity only, *i.e.*, when they want to enlarge their structure of combs, either for breeding purposes or in order to store honey. The secretion of wax, therefore, is a voluntary act. In order not to be misunderstood, I may remark that the expression 'voluntary' is not intended to convey the idea of a conscious act of the will. All the capabilities of animals have their foundation in inherited ideas. These representations and ideas taken together we call free will, inclination, animal knowledge, or we make use of the obscure and frequently erroneously applied term of instinct.

The wax accumulates on the wax-membranes, or so-called mirrors, in small, thin scales, which make their appearance between the last four rings of the abdomen. The drones having no wax-mirrors at all, and those of the queen being quite rudimentary, the workers alone are capable of secreting wax. The small scales of wax are transparent like bright mica, and are generally of the shape of the wax-mirror, *i.e.* pentagons, rounded off. On the floor-boards of swarms which have been put into empty hives wax-scales are always to be found, and often in considerable quantity, for, as bees at starting only commence comb-making at a few places, they are unable to use at once the great number of wax-scales produced, and a large quantity is dropped on the floor-board. When bees secrete wax there is always a pretty high temperature in the hive, varying from 24° to 29° R. (75° to 84° F.). This rise of temperature is caused by the bees themselves; the influence of the temperature of the external air upon the interior of the cluster of bees, in case the hive has been properly constructed, being scarcely worth mentioning. If the colony is small and in too large a hive, or if a badly constructed hive allows the heat to escape and cold air to enter, the bees make an effort to raise the temperature to that degree which is necessary for the secretion of wax. Colonies in hives which are not sufficiently warm secrete but little wax, and consequently do not make much comb. When thin-walled hives are exposed to the heat of the sun the temperature inside may easily rise to 30° R. (86° Fahrenheit); and as soon as this degree is reached the bees are obliged to discontinue all work, as otherwise the temperature would rise still higher, which would cause the wax to become soft and the comb to break.

When the transparent wax-scales are bent or broken or kneaded they lose their transparency and gain the appearance of comb-wax. Originally all wax is white; in the summer, however, the delicate white-comb soon turns yellowish, the pollen being the cause of this yellow colour. Pollen is generally yellow-coloured. Escaping from the melliferous plants it drops upon the nectar, giving it a yellowish appearance, and the bees then remove this yellow nectar with the grains of pollen contained therein. The colouring matter contained in the honey colours the honey-cells of a yellowish colour; the evaporation from honey, of course, also imparts a yellowish appearance. That this is the case may be observed in the small crevices of doors through which the exhalations of bees escape, making the wood appear yellow; the yellow colour does not merely adhere to the outside of the wood, but penetrates it to a considerable depth. It need not, therefore, surprise us to find that these exhalations also impart a yellow colour to the wax. The correctness of this view of the case is obvious from the fact, that in autumn and winter, when bees no longer store honey in recently-made combs and consume very little pollen or hardly any at all, the exhalations from their bodies also being much less than when in an active state, white wax inserted in the hive does not become yellow-coloured, even if surrounded by the bees.

ABBOTT'S ANGLO-GERMAN HIVE.

Dr. Dzierzon, in his *Rational Bee-keeping*, devotes many pages to a description of the Twin-stock hive, and its superiority to all other German hives. This superiority has been acknowledged by the majority of German bee-keepers, seeing at their conventions at Dresden, Breslau, and Stuttgard, it has been awarded first prize. Dr. Dzierzon says that this hive 'combines the greatest possible advantages with the utmost simplicity, and leaves nothing more to be desired.' Mr. Abbott has not servilely copied the German hive, but, recognising its value and its adaptability to the requirements of English bee-keepers, has transferred its leading principles to his new Anglo-German Twin hive. Mr. Abbott's description of it is as follows:—

'It may be worked on any principle, being equally well adapted for the supering, the extracting, the divid-

ing, the doubling, the collateral, or the longitudinal systems, and is the best hive for each purpose, yet is so simple that a child can scarcely mistake its uses. It is specially adapted for perfect wintering, provision being made for the easy application of loose packing of any kind. A novel feature in its construction consists in the moveable dummies being in the front of each brood-nest, so that the bees of both colonies are, in winter, crowded against the single divider for mutual warmth, and to be as far as possible removed from outdoor influences, the spare space in front being packed in any approved way. It can be instantly made of any capacity consistent with its size, and is therefore suitable for any locality. It is intended to contain two stocks of bees, giving to each space for fifteen frames, thus being equal to two complete hives at the cost of one. These two stocks being put close together for the economisation of heat, the front parts of the hive form splendid porches for the protection of alighting bees. This feature is quite new, and is highly successful. The hives may be worked equally well on the commonly known principles if preferred. For queen-raising provision may be readily made for nuclei on either side of the centre divider, where they will be perfectly warm and comfortable.'

Fig. 1 represents the exterior of the Twin-stock as represented in Dzierzon's *Rational Bee-keeping;*

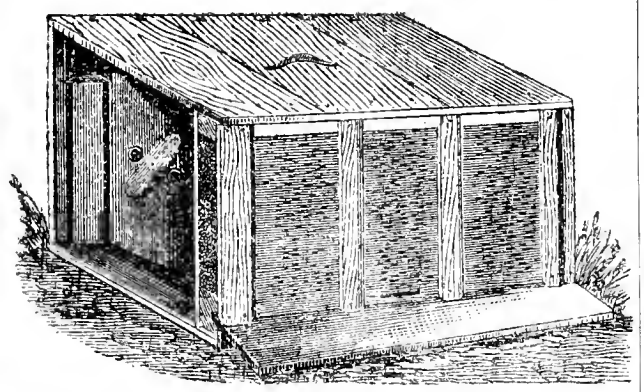


Fig. 1.

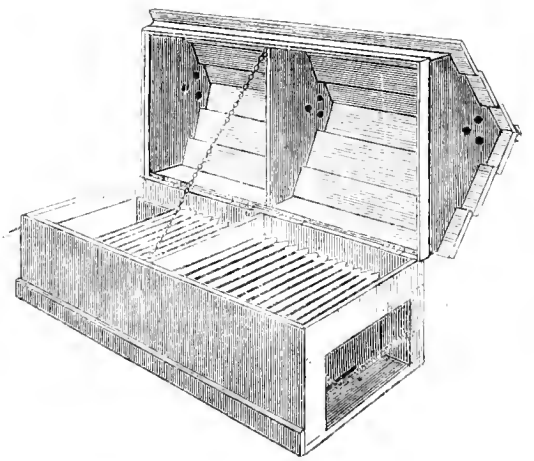


Fig. 2.

Fig 2, the interior of Mr. Abbott's Anglo-German Twin hive.

AN EXTINCT ORDER OF CHIVALRY.

In an interesting notice on French Orders of Chivalry, past and present, a writer in the *Journal des Débats* mentions several which bore the names of different animals, such as the Orders of the Hedgehog, of the Dog and Cock, of the Dove, of the Bear, of the Lion, and of the Honey-bee. The last-named has a very curious history. The medal of the Order had on one side a hive with the motto, 'Picolasi, ma fa pur gravi le ferite' ('Small, no doubt; but it inflicts a sharp wound'), while upon the reverse were the head of the Duchesse du Maine and the following inscription in capital letters, 'Anne Marie Louise, Baronne de Sceaux, directrice perpétuelle de l'Ordre de la Mouche-à-Miel;' underneath, 'Sceaux, 11 Juin, 1703.' This was the date of the foundation of the Order by the Duchesse du Maine, a granddaughter of the famous Prince de Condé, whose husband purchased the Château de Sceaux in 1700. The Duchess, who was very fond of amusements and ceremonial, made Sceaux the rendezvous of the most brilliant wits of the day, and in 1703 she instituted this order of chivalry, to which persons of both sexes were eligible. The members of the Order were expected to appear at all the entertainments given at Sceaux, the men wearing a tight-fitting costume of cloth of gold sprinkled with silver bees, and a head-dress made to imitate a hive; while the costume of the ladies consisted of a dress of green satin embroidered with silver bees, a mantle of cloth of gold, and a diadem formed of emerald bees. The oath of fidelity which had to be taken by each new member was as follows:—'I swear by the bees of Mount Hymettus fidelity and obedience to the perpetual mistress of the Order, to wear all my life long the medal of the bee, and to comply with the statutes of the said Order. If I am false to my oath, may the honey turn to venom, the wax to tallow, the flowers to nettles, and may the hornets and wasps sting my face!' After her husband's death, the Duchess did not name any fresh members; but when conversing with Fontenelle, who, together with Voltaire, Marivaux, and other wits of the time, used to visit her at Sceaux, she expressed her regret that he had not been among her earlier friends, as she would have liked to have conferred her Order upon him. Fontenelle remarked that he would have been ill at ease with a hive on his head, as it must have been very much in the way of the chevalier and of the flower about which he was flitting. To which the Duchess rejoined, 'Not so much as you may imagine; for surely the flowers bend down to the kiss of the bees.'—*Daily News, Nov.* 21, 1882.

Bees; Their History, Manners, and Customs.—A lecture with this title was given in the Free Hall, Melksham, on Monday, December 11th, by the Rev. J. Brown. There was a large attendance; the Vicar (the Rev. Canon Warre) presided, who briefly introduced the lecturer. Mr. Brown then addressed himself to his task. First of all, he had to perform the pleasant duty of thanking the kind friends who had assisted him in various ways, and the result of whose labours was apparent in the diagrams and illustrations which have been freely supplied, and in the models of hives of the 'bar-frame' system, the supers, straw skeps, extractors, &c., arranged on and in front of the platform. Among the chief contributors may be mentioned Miss Warre, who had very kindly furnished drawings of the larva of the bee, the foot, sting, &c., and Messrs. A. Adams, Mansfield, and Childe, who not only provided specimens of the hives and other apparatus, but showed their use, as in the case of the extractor. There was also a number of beautiful diagrams kindly lent by Mr. C. Tite of Yeovil, and Mr. W. H. Dunman, jun. Troy Town, Dorchester. The lecture, which was listened to with great pleasure throughout by the large audience, dealt first with the interest which has always been taken in the honey-bee

and its works (an interest attested by the fact that the Bible alone contains sixty-one references to honey and the honey-comb). Next, with the habits and customs of the insect; in the third place, with its anatomy and physiology; and lastly, with some very practical information for intending bee-keepers. In the first section Mr. Brown spoke of the marvellous beauty and completeness which prevail throughout all the works of God, from the most minute insect or the smallest floweret to the mighty worlds which dwarf our earth into insignificance; and during the evening lost no opportunity of showing how all the wheels of Nature work together harmoniously and in dependence on one another; how, in short, as George Herbert says in his exquisite poem on Providence—

'Thou art in small things great, not small in any,
Thy even praise can neither rise nor fall.
Thou art in all things one, in each thing many,
For Thou art infinite in one and all.'

After quoting many of the passages in Proverbs which dwelt with the treasures of the bees, and giving some very practical applications of them, the lecturer mentioned the curious form of government under which the bees live, half monarchy and half republic, inasmuch as one of the worker-bees may be often raised to the dignity of the sovereign—not, however, without special training. Then followed some humorous remarks as to the bees' politics and their views on the *Drink* question (which Mr. Brown gathered were of the *Total Abstinence* type); also of their very exclusive and inhospitable manners towards strangers (even of their own species), which formed a sharp contrast to the perfect harmony that reigns in each separate hive. Passing on to the third division of his subject, he traced the young bee's development from the egg through the stage of grub and chrysalis up to the mature insect, a process taking twenty-one days. Then came a very interesting description of the three orders of the bee community,—the worker, drone, and the queen-bee. The marvels of the two compound eyes, each made up of 4000 smaller ones; the three single eyes, or stemmata, forming the angles of a triangle on the top of the head, the tongue or proboscis, the hind-leg with its pouch and the brush so necessary to the comfort of the bee, that most cleanly of insects; the sting, the use of which forfeits the bee's life, and the beautiful arrangement by which the two pairs of wings are hooked together when in use, while they can be packed away in smallest compass to permit the insect to enter its narrow cell. All these were explained and illustrated. The drones were next described, taking twenty-five days to come to maturity; without stings, with unusually large eyes, never numbering more than the twelfth part of a swarm, and doomed to die after the swarming season, which lasts from May to July. In speaking of the queen-bee, who is so essential to the life of the community that she must never use her sting except against another queen, Mr. Brown touched on the curious structure of the queen's cell, and the mode in which a worker grub can be transformed into a young queen when needful by giving it a specially prepared food. The beautiful structure of the comb was exhibited, the form of the cell, giving the greatest strength with the greatest economy of space; and then followed full directions for securing swarms; a list of the various enemies of the bees, and instructions for the use of the modern forms of hive. There was an admirable super for skeps exhibited and explained, invented by Rev. W. E. Burkitt, hon. sec. of the Wilts B. K. A. The usual vote of thanks to the lecturer and chairman then brought a very pleasant meeting to a close.—*Communicated.*

Bees and Bee-keeping was the subject of a very interesting lecture delivered on Dec. 13th, to visitors at the Fat Cattle Show in Plymouth Market by Mr. W. N. Griffin, of Exeter, one of the hon. secretaries of the Devon and Exeter Bee-keepers' Association, under whose auspices an exhibition of bees, honey, and hives, was held in connexion with the cattle show. In commencing his lecture, which he illustrated with diagrams and various models, Mr. Griffin remarked that bee-keeping was a subject attracting much attention in the present day, and an industry which ought to be more generally cultivated. After alluding to the fact that bees were spoken of in the Bible and that honey was mentioned there thirty-three times, Mr. Griffin noticed how bees were kept in the East, in Russia, in Germany, and in America, giving many remarkable facts concerning them in this respect, as also in his explanation of the anatomy of these useful insects. He next spoke of the relation of bees to flowers, showing that bees had a large part to perform in the economy of nature besides the collecting of honey, as they were the principal agents in carrying the pollen to the various blooms, especially in fruit-trees. Turning to the practical part of bee-keeping, the lecturer described the ancient system and cruel practice of destroying bees by sulphur; after which he observed that the improvement in bee-keeping might be traced from the last century. In 1792 they found that an Apiarian Society was at work in Devonshire, with J. Isaac as Secretary. This was without doubt the first society of the kind started in the known world. Devonshire also gave an impetus to bee-keeping in the present century, as the late Thomas Woodbury, of Exeter—whose name was a household name among bee-keepers throughout the world—was the introducer of the original bar-framed hive, from which all the modern improvements had sprung. Mr. Griffin further explained the working of modern hives, recommended the use of sections or small boxes in preference to large supers, treated of natural and artificial swarming, and concluded by asking for support for the Devon and Exeter Bee-keepers' Association in its work of encouraging and advancing bee-culture in this county.—*Exeter and Plymouth Gazette.*

Death of a Member of the B. B. K. A.—On Tuesday, December 5th, an inquest was held by Dr. Danford Thomas, coroner for Central Middlesex, at the Hendon Union Workhouse, Redhill, Edgware, touching the death of William Seaman, rged 45, master of the workhouse. Edward Hunwick, master of the workhouse school, said that, having ascertained from Mrs. Seaman that her husband was missing, he proceeded to search for him, and ultimately found him partially undressed lying dead in the bee-house. The deceased's hobby was the rearing of bees. The house was heated by a stove which had been filled with charcoal, but the fire was extinct. Inspector Bonson, S division, deposed to examining the bee-house early on Friday morning, and finding the deceased's coat, vest, and trousers lying near him. Witness also found a flask containing brandy and water, and in the deceased's possession five sovereigns. There were no signs of a struggle having occurred. A stove that had contained a charcoal fire, and which was still very warm, was in a corner of the room; and the deceased, who was partly covered with rugs, lay with his feet near it. There was no ventilation in the room, the heat of which was probably 80 or 90 degrees. Dr. Blasson, medical officer of the workhouse, stated that he saw the deceased between 3 and 4, when he must have been dead two or three hours. His face was calm and pallid, and the pupils of his eyes were dilated. Witness subsequently made a post-mortem examination, and arrived at the conclusion that death resulted from the effects of poisoning by carbolic acid from the fumes of burning charcoal. Deceased had, in fact, been asphyxiated by inhaling these fumes. The jury returned a verdict of 'Death from misadventure.' Mr. Seaman was a member of the British Bee-keepers' Association, and an occasional contributor to the columns of the *Bee Journal.*

Correspondence.

*** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

As it will be the aim of the Editor that the Journal should be published simultaneously with the other monthly serials, Correspondents are respectfully requested to forward their communications as early as possible.

All Correspondence must bear the name and address of the writer, not necessarily for publication, but as a guarantee of good faith.

GREETINGS TO OUR NEW EDITOR.

Will you allow me to wish you a Happy New Year and prosperity in your new undertaking as proprietor and editor of the *British Bee Journal?* I am quite sure that the *Journal*, under your leadership, will not only maintain the position it has gained under the editorship of Mr. Abbott, but will become even more popular as the leading organ of bee-culture. I note with pleasure your promise of a more frequent issue, and would suggest that during the summer months a fortnightly issue would be welcomed by a large number of bee-keepers. Wishing you every success.—THOS. WM. COWAN, *Comptons Lea, Horsham, 18th Dec.*, 1882.

CYPRIANS.

I wish you, personally and editorially, a happy and prosperous new year.

Will you allow me to suggest to those friends who are amateurs in bee-keeping, and have had the courage to introduce Cyprians into their apiaries, a little matter which may be very helpful in the treatment of that handsome and useful race of bees?

The experience of two winters has convinced me that everything should be done to discourage their leaving hives except on such days as the thermometer is at or about 50°. Of all the bees I know, they are the soonest tempted to leave home in search of honey, &c., and thus their readiness to work is manifested on any day that the sun may shine. The consequence is that unless precautions are used the bees leave home in the sunshine, and if the sun should become obscured the general atmosphere is below 50°, and numbers of the bees become chilled and are destroyed. It seems to me, that it is not enough to place some kind of shade in front of the entrance. I have, therefore, adopted the plan of turning the entrances towards the north in winter and gradually bringing them round to the south-east as the spring advances. In this way spring dwindling is reduced to a minimum, because they are not tempted to leave home until the temperature of the atmosphere is suitable.

If very early breeding is desired, this can be accomplished by supplying them with flour-cake, and thus the necessity for leaving the hives in search of pollen, &c., is abolished.—T. C. SISSONS, *Shooter's Hill.*

OUR HONEY IMPORTS.

Your readers will be pleased to learn that we are likely to be able to publish the returns of our honey imports shortly. When the Customs list was revised in 1871, the article 'Honey' was struck out as being insignificant and of no interest to the community generally. But as bee-keepers very well know things have greatly changed since then, and our American imports have grown to an alarming figure.

Through the kindness of the Principal of the Statistical Department of Her Majesty's Customs, I am able to say he has been so kind as to make private inquiries at the different ports and hopes to furnish me with figures towards the end of next month. As these are sure to be of great interest to the bee-keeping fraternity, I propose sending them to you for publication as soon as I receive them.—E. H. BELLAIRS, *Christchurch, Dec.* 1882.

[On inspecting the imports of the United Kingdom for 1881, we felt not a little disappointed, that while the imports of wax (see p. 184) were given, those of honey were omitted; and we were at a loss to comprehend the reason. This has now been afforded us in the communication of Mr. Bellairs, namely, that the officials in 1871 considered them to be 'insignificant and of no interest to the community generally.' As, however, these statistics are at the present time of the greatest interest to bee-keepers, we shall be pleased to publish them, and to acknowledge our indebtedness to Mr. Bellairs for the trouble he has taken in procuring them.—ED.]

STANDARD FRAME.

Judging from the columns devoted to correspondence in the December number of the *British Bee Journal*, p. 166, it would appear that there is still some diversity of opinion or indecision in the minds of the members of the Frame Committee concerning the usefulness or the reverse of distance-guides; and as to the most suitable length of top bar of Standard frame.

Should this be the case, might we suggest that the question of guides could be left to the fancy of the individual, without detriment to after interchangeability, if the Committee framed some such rule as the following:—All wide-shouldered frames desired to be entered for competition, or to be recognised by the British Bee-keepers' Association, should show the same on 'plan,' or ('be after the same hand') as Abbott's. These would interchange perfectly with each other, with straight tops and with metal cornered frames.

But the exact length of top bar is an important factor in relation to interchangeability, and (if not already decided upon) a $\frac{3}{4}$ in. projection, making a $15\frac{1}{2}$ in. top bar, appears to have two advantages over any other size. It allows the most suitable size of rebate for single-walled hives, viz., $\frac{1}{2}$ in. 'on' by $\frac{3}{8}$ in. 'down;' and as these are likely to be the hives most used by cottagers, and the poorer classes generally, it is a point worthy of consideration. Further, it is a rebate of the proper gauge for metal corners, so highly spoken of by the Chairman of the B. B. K. A.; and, probably, more popular than any other size.

For the good of the community of bee-keepers in general who may desire an universal frame, and for the convenience of manufacturers, is it not desirable that an early decision shall be arrived at, and publicly announced, by the Committee in their official organ?—EDEY & SON, *St. Neot's, Dec.* 15, 1882.

SECTION FRAME FOR BODY OF HIVE.—DEFECTIVE HIVES, &c.

The frame suggested by Mr. W. E. Best in the December number, has, I think, simplified the use of frames to hold sections in the body of the hive, and one can hardly suggest an improvement, and it may fairly be christened the 'Best' frame. The only suggestion I can offer is that the frames have a wood or tin divider on the other side, with passage ways through. The frames to be hung a quarter or three-eighths of an inch apart, so as to avoid propolisation. I tried this plan myself this year, and found it work admirably, as the frames could be lifted up and down without the jarring or irritation to the bees; and the bees did not build between the two frames. I would also suggest that this plan of

using sections in shallow frames, should be used in crates over the bars instead of the present plan of having the sections all packed close together, which makes them so difficult to move when propolised.

A great defect in crates as mostly used is that they are made to rest on the bars all round and across the centre, and when they are propolised they are very difficult to loosen, and causes terrible irritation to the bees. There should be a space outside the frames, and between the hive sides that the crate could rest on, to have a knife run round to loosen.

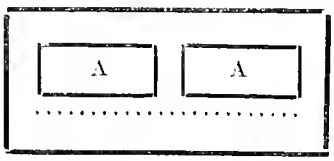
I found good reason to object to the above want of scientific make, as a good many hives constructed thus have been put on the market here; they have also fixed floor-boards, which is very objectionable in square hives. The division-boards had no plinths and so warped out of shape, and were of a very loose fit, and no provision for preventing loss of heat. And yet these hives have won prizes. In many instances they were made of unseasoned spruce deals, and they shrunk so, that the frames were resting, or close to the floor-board, and this after being a month or two in use. This sort of thing will do much harm to the adoption of modern methods, and manufacturers of such utterly defective hives ought to be ashamed of themselves. I need not say that experienced bee-keepers were not purchasers.

If manufacturers would put a saw-cut in sections for inserting foundation, it would be a great boon, the extra cost would be slight and gladly paid for: and some were made also of sizes so that four would fit in a frame, or two across in a crate.

In making hives there is often difficulty in keeping nails from drawing. A joiner gave me a wrinkle worth knowing. Instead of driving the nails in straight, give it a slant and it takes a very firm hold.

I have tried various methods of shading entrance, and find two pieces of wood 6 in. long, nailed at right angles, and placed before entrance-hole, so that the bees can run round the ends and so get in, to answer very well. Mr. Simmins' 'draught preventer' is good, but has to be examined very often to prevent blocking up.

To prevent mice entering, cover entrance with excluder-



zinc, but a bar must be cut off a little more than half, and the bit left then cut out, to give more room and that the bees will not have to squeeze through. The dotted line to be cut through, and the bits left under A A to be cut out.—J. Crosbie Smith, *Passage West, Co. Cork.*

PLAIN *v.* CLOSE-ENDED AND OTHER FRAMES.

For several years I used wide-ended frames, and in 1878 exhibited at South Kensington a hive of the pattern used by me. The frames could be either inverted or reversed, and the ends were attached to the top and bottom rails, overlapping them $\frac{3}{8}$ in. on one side, and $\frac{1}{8}$ in. on the other, with the respective projections of the opposite ends reversed, thus permitting either side of the comb to be placed close against the cage of the extractor.* At either end of the frames was a thin slip of wood 1 in. × $\frac{1}{4}$ in., set about $\frac{1}{4}$ in. from the $1\frac{1}{2}$ in. ends. Without this the combs would often be built out on to the joints of the wide ends. Instead of this separate slip I afterwards tacked a piece 1 in. × $\frac{3}{8}$ in. down inside of each end.

The one-eighth projection on one side was permitted in preference to having that part flush with the 1 in. top and bottom rails, for several reasons. It allowed the sides to be fastened as near the centre as they dared be, so as to prevent warping as far as possible, while at the same time permitting the frames to be used in the extractor without fear of breaking the combs. The false side being that distance ($\frac{1}{8}$ in. on one side) from the next wide end, there was no angle formed just where the $1\frac{1}{2}$ in. sides met. It also gave an even surface on every edge where the frames came in contact. This is far from being the case where the top and bottom rails are supposed to be set flush to one side of the wide ends, thus forming angles for the reception of propolis on the very joints, and where, sooner or later, a larger crevice will result; caused either by the unequal shrinking of the two pieces of wood, or the accumulation of propolis, to which the bees will add every time their joint is broken open. It is impossible to replace every frame *exactly* as it stood before; and if scraping be resorted to, though perhaps answering for a time, it will soon make an impression on the wood, giving the bees a larger space to fill up.

My frames rested at the bottom on $\frac{3}{8}$ in. rabbets at either side, so that no bees could get between the frames and the outside cover. The hive was awarded an extra prize; and although the wide-end was a pet hobby with me, and I considered the frames as perfect as they could be made, I have been compelled to give them up.

They were made of the very best wood, and with such care that no crack or crevice was left between the joints, and yet as soon as the weather was the least chilly, the frames would not part without a slight jar; and during the first operations in spring I often found it very difficult to part them without inserting some thin instrument between the ends, thus proving that however well the frames may be made, or held tight as I had them,* the bees will propolise where there is the least sign of a joint.† During warm weather one has no trouble to part them, as the propolis is then soft and pliable; but even then my experience has taught me that where one intends to make a business of bee-keeping, and has many hives, this style of frame requires too much time in manipulating, without regard to its other disadvantages.

As combs vary so much in thickness and shape when

* Two years later, the editor of the *British Bee Journal*, vol. viii., p. 3, while describing a similar frame, says: 'We venture to illustrate the improvement we believe will make the same perfect. It will be obvious that frames with ends wider on both sides than the combs are will not lie comfortably on the flat wire frame of an extractor. . . . instead, therefore, of widening the frame-ends on each side, we suggested that they be widened on one side only at each end as shown in woodcut, so that the widened part can rest on the top edge of the extractor-cage, and the comb be flat upon the wire-work.' Should Mr. Abbott go in for honey-raising on a large scale with this class of frame, after a few years' trial I think he will be forced to confess that it is far from being *perfect*.

* It is obvious that unless these frames are held tightly together by some means they are worse than useless. With some of my hives I used steel springs for this purpose; while in others I had a single wedge of peculiar construction, which could be shifted forward to accommodate any number of frames. But these very necessary adjuncts are objectionable in themselves. They represent so much more time taken up in manipulating; can often not be released without jarring the hive; and even should the wedge be pressed only just home, the slightest change in the atmosphere will cause the frames, either to be slightly loose, or to fit so tightly that it is moved with difficulty.

† Frames with broad shoulders are also difficult to part as soon as the propolis cools; and where these frames are in long hives, the sides of the hive warping at about the centre make it impossible for them to fit as they were intended, and an opening is left between the under shoulders and the walls for the reception of propolis.

sealed over, frames cannot always be interchanged without leaving some of the sides apart; and should the least space be left, of course propolis is immediately inserted.

It has been supposed that bees will winter better in such a frame, as the draught does not (?) pass round the ends of the combs. I cannot say that I have found stocks in wide frames any forwarder in spring than those in inch frames with the space at the ends; but, on the contrary, the past two seasons my earliest stocks were on frames of the latter description, in single-walled hives. The four stocks in my remaining wide frames were, however, in a double case, had the oldest combs, were well stored, and, altogether, were kept much warmer, and had as many, or more, bees the autumn previous.

If only the bees are crowded on a few well-stored combs, I consider the circulation of air round the frame-ends no detriment, but a positive benefit—their very life—providing there is no direct draught. As I used the wide-ended frame for about six years, and have had as many as twenty hives of the kind in operation at one time, my experience justifies me in saying that the frame will never come into general use. Many who advocate its use at the present time are only novices, who, after a little experience, will cast it aside; and those of higher standing who recommend it, I am afraid, have not worked for honey on a scale sufficiently extended to justify them in placing it before the public as one of the best, if not *the* best, frame for all purposes.

We hear of individual cases of success with the frame in question, and any practical bee-keeper willing to put up with its inconveniences could succeed with the same, but that is no reason why the majority should not prefer and use a frame that is at once more simple and efficacious, requiring much less time to manipulate.

Those who say that close-ended frames are more in accordance with the natural instincts of bees, evidently forget that in man's hands they are far from being in a natural state. The bee-keeper, working for profit, can allow his bees to follow their own fancies only in so far that they do not clash with his own ideas of economic management.

How many are there who have seen bees in their natural state? I have found them in domiciles of their own selection, not only with a large air-space at both ends of the combs, but, in addition, what is thought to be very undesirable, a considerable space above the combs. In cases where the combs have been a yard or so in length, they joined the sides of the natural hive, only so far down as the honey was sealed; and the rest of the comb, varying in depth from eighteen inches to two feet, was either not fastened to the sides at all, or only here and there by slight supports. The same is to be seen in other fixed-comb hives; and as the bees in cold weather, being in an extended body in such domiciles, cluster on, and in, the vacant cells, they are, of course, below the honey, and have a circulation of air on the two sides of them. As heat ascends, a large portion of the warmth generated by bees located in this manner is lost above the cluster by dispersing between the solid and cold walls of honey. In this respect they are not so well off as they would be on a limited number of ordinary frames, crowded into a compact body on well-stored combs, when there would be no space above them, as they then cluster close up to the quilt or chaff-cushion.

I was at first rather sorry to give up the wide frames, but finding the more I had to do with them the more unsatisfactory they appeared, I began to use a perfectly plain frame, having neither shoulders nor pins as distance-keepers. I soon ceased to regret the change, and finding the latter more easily manipulated than any other frame I have used, I have adopted them for all my hives. Having no guides, practice has enabled me to readily place the frames in position at all times, and they can be adjusted to suit any requirements. Thus, for winter they can be spread a little farther apart, permitting the bees to cluster in larger bodies, as they are so fond of doing; or, in spring, they can be brought to within almost a quarter of an inch of each other, compelling a certain quantity of bees to extend over a larger surface of comb, so that the brood-nest is more rapidly extended. There are no projections to hang up, nor shoulders to break off, as is often the case where the latter are used, however well they may be made. The shrinking or expansion of the wood is no inconvenience, neither is it noticed with perfectly plain frames, which do not come in contact with each other.

Many objections are put forth against a frame having no guides. One is, that in carrying a hive of combs and bees the combs will swing, or be jammed together, crushing a number of bees, and more than likely the queen. With ordinary care no such accident need occur, nor has it ever happened to myself. Combs containing brood, or only a pound or two of honey, are prevented from swinging simply by their own weight, and nothing but an act of great carelessness would drive the combs one against the other. Another objection is that a novice will get his frames and combs into all sorts of positions, if he has no guides to go by. Because the beginners of the past have had leaning props to help them, that is no reason why those of the future should start with the same. On the contrary, they cannot afford to go over the same ground as their predecessors, but must profit by the practical experience of others, and start at the point where they find the advanced bee-keepers of the day. Of course there is the probability that some will at first have an accident; but those who really intend to stick to bee-keeping will soon surmount the supposed difficulty.

As there are so many plans for keeping frames the necessary distance apart, and different makers *place the respective projections on different sides*, it would have been impossible to select either one of them as a Standard, to be generally interchangeable; and I am pleased to note that the British Bee-keepers' Association has taken a step in the right direction, and hope they will continue to advocate a perfectly plain frame, which, for all purposes, has been proved by the majority of advanced bee-keepers to be decidedly superior to any other, and is the only one that can ever be adopted for a Standard.—Samuel Simmins, *Rottingdean, Brighton.*

CLOSE-ENDED FRAMES.

I should like to make a few observations regarding the remarks signed 'Ed.' to my letter in last *Journal*. I should like to know what an 'advancing bee-keeper' is. I, and I believe most of my brother bee-keepers, consider when they manage their bees according to modern principles they are advancing bee-keepers; but there seems to be another class implied as such, which I should call *expert* bee-keepers; and if this hint was addressed to such I should have nothing to say. I am under the impression that the British Bee-keepers' Association is working, along with its noble army of voluntary subscribers and workers, to better the condition of poor Hodge by bee-keeping; and I think, unless the Association puts its foot down, the cottagers of the United Kingdom are likely to be serious losers by making, getting made, and trying to use these hives, which they cannot very well afford to.

In the paper published in the *Bee Journal*, vol. ix., page 5, it is stated by the editor in his 'Tenthly' that, 'the hive should be inexpensive and easy to make.' Now I most stoutly deny that it is possible for an amateur to make it (no matter how clever he may be), let alone being easy to make. I don't question the ability of Messrs. Abbott to make these hives cheaply and easily

after seeing the general quality of what they turn out, but many bee-keepers like to make their own hives during winter, when they have nothing much to do, and thus save something and the carriage. Personally, I have not been able to buy well-seasoned timber free from curliness; and to keep the frames 'jammed tightly together' and allow for differences of weather, I think a railway-buffer spring would be required.

I still think Huber's hive, of course with quilt added, the best close-ended hive invented so far; neither do I consider it a 'crude invention.' Huber was a great observer, and the greatest benefactor to bee-keepers that has ever lived, so far as is known. Huber gives very minute directions for making his hive, and when any one invents anything and wishes for a patent they have to file very exact directions for reproducing their invention, or their patent is null and void; and I think when a man invents something, and wishes to benefit his fellow-man by it and see his invention adopted, he should give exact instructions for making it.—JOHN HEWITT, *Sheffield.*

CLOSE-ENDED FRAMES.

In sending you the following communication, I must first congratulate you on your having become Proprietor and Editor of the *British Bee Journal*, and I wish you every success with it; I may add, at this season, 'A Happy New Year,' both in regard to the *Journal*, and in every other respect.

I wish to contribute my 'mite' towards close-ended frames. On page 131 of the *Journal* for October last, the late Editor furnishes us with a quotation from Goethe, under the heading, 'Quite true in Bee-keeping,' which many doubtless remember. Now, I think that quotation will apply to this subject; for many try to run these close-ended frames down, apparently only because they are different from the other frames, or because sufficient attention is not paid to their make and management. I do not pretend to say that they are good or bad, but as far as my experience goes I can endorse what Mr. Abbott has told us about them. Last March I purchased a gross of these frames, and hives were at once made 14½ in. × 8¾ in., and the frames—Abbott's Woodbury Standard—placed in them, together with bees; altogether twelve hives, two of them being very strong. I followed Mr. Abbott's advice of 'keeping the frames jammed tightly together' by means of a brick, and I have never found them stuck together in any way. Mr. Abbott makes his sides to these frames about ⅜ in. thick, meeting each other flat and truly. (I have seen them chamfered very thin at the edges, and have been told that these answer very well, but that I have my doubts about, however well made.)

I noticed in the last issue (December) a letter signed 'John Hewitt,' in which he complains of not always being able to slide these frames down from the top, which, I suppose, is because the bees will build some of the combs out wide at the top. Where this is the case, I have placed the frame in the hive about a quarter of an inch from the frame it is intended to join to, gradually closing it up, shaking it slightly whilst so doing, and in this way I have found that the bees got out of the way of the frames and 'avoid the crush.'

To my mind the best material to make these frames of is pine, the side-ends being cut with a fine saw, or, better still, machinery, as they will then be more true. I should certainly not recommend mahogany, with smooth side-ends, as a smooth hard side would, if possible, be much more liable to be propolised fast together than a soft one not quite smooth.

In conclusion, I do not see any more difficulty of management in these frames than in the others, whilst they possess many advantages.—A. T. WILMOT, *Alma Road, St. Albans.*

LIGURIANS *v.* BLACK.

A communication under this heading appeared on p. 167 of the December number of *B. B. J.* Although agreeing with much that appeared, the writer begs to offer some objections. What must strike all who have manipulated the combs of both Ligurians and black bees is the large amount of brood in the former compared with the latter if under the same conditions. In a poor season, or when, from various causes, there is a small yield, owing either to cool or wet weather preventing a secretion of honey, or from the absence of blossoms, the dearth will most affect that colony which has the greater number of non-producing consumers. Indeed (if uncontrolled) it may be taken as an axiom, that, under unfavourable conditions, blacks may store a surplus, larger or smaller as circumstances vary, when Ligurians will only obtain a hand-to-mouth livelihood, or even approach starvation; but under favourable conditions, such as genial weather, a field of white clover, or any other crop that affords sufficient scope for the numbers of workers Ligurians with efficient management can place in the field, the verdict is reversed, and there is no comparison in the result.

But the production of useless brood may at all times be controlled by the use of excluder-zinc, so that at the approach of a honey-glut the leading traits of both races may be embodied in a hive of Italians.

Ligurians have been known to collect pollen, and may also gather small supplies of honey, but has it ever been satisfactorily proved that they can store surplus from ordinary red clover; if so it would be interesting to know the colour, and relative value, of the honey? Is it not probable those alluded to (par. 6, p. 167) obtained the maximum amount of their harvest from the 'twenty acres of sainfoin in its prime?'

So far Mr. Simmins and myself do not differ materially; but I deny that the greater number of imported queens are so injured by the wear and tear of the journey that only a very small percentage are really first-rate. A far more frequent cause of failure is owing to unsuccessful attempts to introduce, and to the antipathy shown by the queenless stock to an alien queen. This will continue so long as bee-keepers endeavour to build up old and worthless stocks (often unsexed by age and infirmity) by the introduction of a valuable queen. A less economic system could not be devised. If the worn-out bees must be re-queened, try them with a black or hybrid queen; but in all cases give the imported one to a good colony with brood in all stages. Further, it would be to the advantage of both buyer and seller if the latter would arrange to purchase near the date of arrival, as queens would then be larger, fresher, and in all respects superior. I conclude, from par. 8, that the home-reared queens mentioned are descended from some of the imported mothers; and if as in the case related they are so valuable, surely it only goes to prove the value of imported, if only for queen-raising.

We differ, again, in our estimate of the value of the post as a means of transit for queens. It is doubtful if anything else would give so great a stimulus to the sale of queens as the opportunity, under proper control, of transmitting by post, considering the cost by rail has been, and in some cases still is, from 25 to 50 per cent of cost. As to the statement that the vitality of queens is injured, I reply, Not necessarily. Root, in *Gleanings*, writes, 'We now ship (*mail or post*) queens by the thousand, and send them safely almost everywhere. With the same cages (*Peet's*) and the same candy (*Viallon's or for preference Good's*) as sent you, we have scarcely a failure.'—(The Italics are the writer's.) But even supposing that posting, or forwarding by the ordinary method, is injurious, there is yet another way out of the difficulty. Small imported swarms of about one pound in weight, headed by an imported queen, may be procured with equal facility as home-reared, and by the addition

of a bar of brood as often as they can cover it, may be built to any reasonable weight in a few days.

Trusting these remarks will be received in a like spirit to which they were written in.—JOHN EDEY, *St. Neots.*

SUGGESTIONS FOR THE 'HAND-BOOK': STRAW SKEPS FOR COTTAGERS.

A discussion arose at the recent meeting of the committee of the B. B. K. A. on 'The Advantages of Straw Skeps for Cottagers.' The advocates of that system were desirous of having a chapter setting forth their views introduced into the new edition of *Modern Bee-keeping.*

Mr. Bartrum said—'That before the committee entered on the task of revising *Modern Bee-keeping,* prior to printing, as was proposed, an issue of 10,000 copies, he hoped the propriety of introducing additional information on the management of straw skeps, and of adding a chapter on sectional supers adapted to skeps, would be fully considered. He would not for a moment assert that a bar-framed hive was not superior to a straw skep, but that was not the point he wished to press upon them. The B. B. K. Association was intended especially to promote bee-keeping among cottagers, yet, how many cottagers could afford the bar-framed hives, which the Association and its experts so strongly urged all alike to obtain? As a matter of fact, a good bar-framed hive, with the various appliances it requires, could not be purchased without an expenditure ranging at the least from 10*s.* to 1*l.* Thus, a poor man would involve himself in a considerable expense if he bought any number of bar-framed hives. It is true that a man who had some skill in carpentering could lessen the cost by doing most of the work himself, but all men had not this gift. How could a labourer earning perhaps 15*s.* a-week afford to lay out his hard-earned savings on a bar-framed hive? In such a disastrous year as the present, where the bees were fed instead of feeding others, his loss as well as the losses of those who earned even 30*s.* per week, would be serious. But a straw skep could be purchased for 2*s.*, or even a smaller sum, and in some cases men would be able to make the skeps with their own hands. Hundreds in this way could begin bee-keeping, to whom the cost of the bar-frame and its appliances, to say nothing of the bees, was absolutely prohibitory. The Association, he thought, should encourage the cottager class to use sections on skeps, and in this way those who acquired skill in the manipulation of bees and the management of sections would be led on to the use of the bar-framed hive. Their expert, whose experience was singularly varied and wide, told him that he had supplied no less than 250 straw skeps during the past year to various applicants. These were all of good size and flat-topped, so that a crate of sections made in a special way could be placed above the skep. Section honey in this manner could be obtained by the cottagers at an expense which would be comparatively trifling, and the sense of disappointment in the event of failure would be less severe. Neophytes would begin in a humble way and rise to higher things with an increase of knowledge and of means. As the stocks multiplied and more homes for new families of bees were needed, bar-frames would be obtained, and perhaps in the end would supersede the skep. He trusted, therefore, that the sub-committee about to be appointed to revise their manual would insert a special chapter on sections to be placed on the top of skeps, and also enlarge the present chapter on that form of hive. By so doing they would meet the wishes and wants of not a few; they would, moreover, render the work of the Association more popular as well as more useful.'—*Bee-keepers' Record.*

[The Rev. E. Bartrum has requested us to reproduce the above in the *B. B. Journal,* as he is apprehensive that the position he has taken with regard to skeps has been misunderstood. We have much pleasure in complying with this request.—ED.]

HONEY-BEARING PLANTS.

As I did not see Berberis Darwinii noted amongst the 'Honey-bearing Plants' (page 177, *B. B. J.*), I wish to give my testimony in its favour. It is very beautiful as a hardy flowering shrub, bearing a profusion of orange blossoms in bunches, which are in their turn succeeded by bunches resembling miniature black Hamburg grapes, of a pleasant, sub-acid flavour, which would yield a nice jelly, but are too full of seeds for jam. Blooming in March, it affords a very early and constant supply of honey and pollen for weeks. So impressed is the writer with its value that he intends (D.V.) planting at least 200 plants of it this year. As they transplant but badly from the open ground, they should be turned out of pots into their permanent positions.

Buddlea globosa, another shrub that later on affords excellent pasturage, should be largely planted.

Corn-flower, an annual, in its various colours all beautiful, is a great favourite with bees, and affords a large amount of honey and pollen.

Bees worked on ivy until very late this year.

Wasps were not very plentiful here this year. I succeeded in destroying three colonies late in autumn that were full of queen wasps, one especially that was making very free with two weak hives. Some plan should be tried to discover their nests, such as the bee-hunters use in America. Why could we not line a wasp as well as hunters line a bee? I hope to try.

There is, I hope, a good impetus given to the management of bees on the humane principle in this country. I had bees many years ago in the Woodbury bar-frame hive, but gave them up, partly because I found they wintered badly in them, and partly because I suffer so much from their stings; the pain I count as nothing, but the after-results—a rash first, next sickness, loss of sight and consciousness—are very serious items. Three or four stings at times would bring about above results. I sleep it off in a couple of hours, but a feeling of sinkness remains for a day or two; is there no antidote?

The bar-frame hive, with full sheets of guide-comb, is the true method of working bees for profit; the wax is quickly worked into comb, and all the operations are expedited. Is the cell drawn out from the substance of the guide-comb, or built with secreted wax?

Having planted an acre of Trifolium incarnatum for bee-food, I am anxious to know if both Ligurians and black bees can work on it.—JOHN SMYTH, *Ballinacurra, Co. Cork, Dec.* 18, 1882.

[From month to month we give insertion to 'Cures for Stings.' In the present number you will perceive that the application of warm water is recommended; and on p. 206 there are some very valuable suggestions by Dr. Walker as to treatment of persons when stung.—In the comb foundation of various makers the base of the cell is of such thickness that the bees are able to utilize it for the elongation of the cell-walls.—*Trifolium incarnatum* is of little value for bee-food. Mr. Cowan, who had last season twenty acres of it, informs us that both Ligurians and Blacks are to be seen on it occasionally, but they do not visit it unless food is very scarce. The only clovers yielding honey abundantly are *Trifolium repens* (White Dutch), *Trifolium hybridum* (Alsike clover), and *Melilotus leucanthe* (Bokhara clover).—ED.]

JUDGES AT SHOWS.

Mr. Aldridge has mentioned my name in a letter in the last number of the *British Bee Journal,* and though he did so merely to point an *argumentum ad hominem,* I shall be much obliged if you will allow me to say something on the matter.

On the merits of the case under discussion, I shall not give an opinion, as I was not an exhibitor in any way affected by the impaired award. As Mr. Aldridge states,

I acted as judge at the bee-show at Strabane, and I was awarded three prizes. Of course I did not take any part in the judging of the classes in which I competed, and nobody hinted that the decisions were not perfectly just. But when I read the account of the show in the paper next morning, I was much struck with the very ugly appearance of the announcement, even though it was not surrounded with notes of admiration, and I determined in my own mind that never again would I compete for a prize at a bee, hive, or honey show at which I was a judge or secretary. It is impossible, I believe, for defeated competitors to help some soreness of feeling if they see one of the judges getting a prize; and if there is anything doubtful or shaky in the award, that soreness is sure to find expression, with the result of much bad writing, bad temper, and bad feeling.

I intend, therefore, for the future not to run the risk of injuring a society to which I may belong, or which may have paid me the compliment of asking me to award its prizes.—GEORGE GREER, *Woodville, Lurgan, Ireland.*

BEE-KEEPING IN IRELAND.

With all the strife in this unhappy island a few of us endeavour to pursue our harmless and favourite hobby. A record of our stewardship will prove interesting. Autumn 1881 found us with a bee show under the auspices of the Irish Bee-Keepers' Association, which was the first indication of an educational movement on behalf of the busy bee. April 1882 found us on the premises of the Royal Dublin Society, and again in June at Salthill Gardens. We visited Cork Show, and the International Dairy show found us still pursuing the 'modern mode' of managing bees. We visited the highways and the byways with missionary effort to spread knowledge so essential and sadly needed to preserve millions of bees from the 'fatal pit.' With our combined knowledge we must state that the proper cultivation of bees is at a very low ebb in Ireland, and needs further energy to reach the resident gentry in their now inaccessible homes. It is a wonder that bee-culture even holds its own, seeing the number of badly-made and ill-constructed hives that are constantly foisted upon the public by inexperienced manufacturers that never handled or kept a bee in their life. The gardeners, as a rule, are dead against the new system; this I experienced at a flower show and bazaar at St. Ann's, Blarney. Sir George Colthurst's gardener would not even listen to any movement having for its object improved culture of the honey bee: hence an expert in Ireland must have great patience. He has to listen to the local gentry backed by their gardeners running down the 'robbing system,' as they call it. They then go on, 'I knew a clergyman here, kept his bees in "patent hives," he robbed them, and they died in the winter: it is a thing you can never perform, take the honey and save the bees.' The gardener then backs up the master and tells story about his experience, which ends in the condemnation of any but to smother the good heavy hives. When they hear of bees being taken from straw-hives and placed in bar-frames, their astonishment is still greater. At the end of all the discourse you must have your doctrine at your finger-ends, no stammering or mishap, else you are set down as an impostor, and modern bee-keeping ruined in the district. The judging of hives is also imperfect with few exceptions.

At our Dairy Show in October 1882, the judging (in my opinion) was perfect, and the hives obtaining prizes were well and scientifically made. It may interest your readers to learn that I was instrumental in selling 300 bar-frame hives (broad shoulders) to the people of Ireland the past summer. I induced a gentleman here to open up a hive-factory, which gave a large amount of employment as well as spread the benefits arising from the modern mode of managing bees profitably and intelligibly. He is at present engaged in making a stock of 500 improved bar-frame hives for the coming summer.—J. TRAYNOR, *Tinahely, co. Wicklow.*

TILSEED.

A genus of plants of the order of *Bignoniaceæ*. The species are natives of India and Africa, and are annual plants covered with hairs, their flowers solitary in the axils of the leaves, on very short stalks. The sweet oleaginous seeds are used in some countries for making a kind of hasty pudding. In Egypt they are eaten strewed on cakes. The bland fixed oil, obtained from the seeds by expression, is used as an article of food, as olive oil, and keeps long without becoming rancid. For the sake of its oil it is much cultivated in Japan, China, India, and in many tropical and sub-tropical climes, and has been cultivated from very ancient times. It is too tender for the climate of Britain. The oil-cake mixed with honey and citron is an Oriental luxury.—L. W.

[In our September Number, p. 100, there was a letter signed 'John Brown, of Melksham,' headed 'A new Food for Bees,' in which he inquired respecting tilseed: the above is a reply to his question. In the *Ladies' Treasury* for December, 1882, will also be found an interesting article on Tilseed, with an illustration, and the mode of expression of its oil. In that, too, is narrated the incident referred to by Mr. Brown.—ED.]

EFFECTS OF BEE-STINGS.

In the *Journal* for December, 'E. H. B.' wishes to know the treatment to be adopted when a man or woman gets into a state of coma from a bee-sting, which of course will depend on the cause of the coma.

The bee-poison, when taken into the system, gives rise to a form of blood-poisoning, but as the amount of poison even from twenty stings is so small, the symptoms, except in those cases where the person stung is in a bad state of health, never become serious.

Death has resulted from persons having been stung inside the month, or the throat, by eating fruit, honey, &c., in which a bee has been overlooked, and the swelling caused by the bee-poison, closing up the wind-pipe, has killed the patient by suffocation.

In these cases, the only remedy would be to make an artificial opening in the wind-pipe, an operation difficult even for an experienced surgeon.

In those cases where death is imminent from 'shock,' the best remedies would be stimulants, either in the form of brandy, whisky, &c., sal-volatile internally, or by injection under the skin, strong coffee or tea, together with galvanism, and hot cloths applied to the head and chest.

The after treatment would consist in building up the patient's strength by means of stimulants, strong beef-tea and soups, milk and eggs, with quinine, bark, and mineral acids.—GEORGE WALKER, L.R.C.P., *Wimbledon, 22 Dec.*, 1882.

ANTIDOTE FOR WASP OR BEE STINGS.—During my life I have heard of many persons having been stung—some even to death—by wasps, &c. I have shared in the suffering to a great extent. On one occasion I was dreadfully stung by a wasp on my tongue and arms. I have invariably found the earliest application of hot water to instantly nullify the sting, and prevent further suffering. I am happy to say many others who have tried this simple thing have found it a perfect cure.—W. PLANT, *Stonham, Aspel, Suffolk.*

A LITTLE boy quietly watched a bee crawling on his hand, till it stopped and stung him, when he sobbed, 'I didn't mind it's walking about, but when it sat down it hurt awful.'

Review.

DZIERZON'S RATIONAL BEE-KEEPING.*

Our first feeling on receiving this work, to which the bee-keeping world has been looking forward with so much expectancy, was one of gratitude to Messrs. Abbott and Stutterd for affording us this opportunity of acquiring a knowledge of the science of apiculture as practised by one who has been styled by Baron von Berlepsch 'the father of the new era of bee-keeping,' and who has earned the proud title throughout Europe *of le père du progressif apiculture*. Our second feeling was one of sincere satisfaction with the able manner the editor and the translator have executed the task they set themselves to perform. We have some acquaintance with American works and American bee-masters. The names of Langstroth, Quinby, King, Cook, Root, Newman, and many others, are familiar to us as 'household words;' and we have not been slow in profiting from the information conveyed in their writings, neither have we been backward in acknowledging our indebtedness to them for the practical hints they have given us in the use of sectional supers and comb-foundation. But German apiculture has to a great degree, up to the present time, been 'a fountain sealed' to the great majority of British apiarians; and therefore we hail with joy this addition to our knowledge of the accumulated experience of so renowned a bee-master as Dr. Dzierzon. We feel assured that its study must be beneficial to all who thoughtfully peruse its pages; and we hope that it may receive at the hands of British bee-keepers that appreciation which it so richly merits.

In the author's introductory remarks we are struck with the fostering care and the great encouragement bestowed on bee-keepers by the Government and by learned institutions and agricultural societies in Germany. They honour themselves by honouring Dzierzon. By these he has been awarded a great many gold and silver medals and numerous certificates of honour; the honorary degree of 'Doctor' has been conferred on him by the University of Munich; and he has been decorated with the Grand Ducal Hessian Order of Ludwig, and the Imperial Austrian Order of Francis Joseph, besides receiving many other distinctions. The thought passes through our minds whether it may not be in the possibilities of the future that one who has obtained such marks of honour throughout the Continent may likewise, when this work is read, studied, and digested, receive (say) from the British Bee-keepers' Association some expression of its respect and appreciation.

The work is divided into two parts: 1, The Theory of Bee-keeping, or the natural history of bees; and, 2, The Practice of Bee-keeping. We have been much interested and instructed by the former of these divisions. It is full of suggestions to the rational bee-keeper; it contains a mine of knowledge respecting the nature, instincts, and disposition of bees, and the conditions necessary to their thriving; in fact, we have here the experience of the perceptive mind of one who for more than fifty years has been in the forefront of his profession, and who has bestowed upon his favourite study the most careful and painstaking attention.

Dr. Dzierzon's 'Practice of Bee-keeping' will furnish his readers with many new ideas. His practice may not be our practice; his hives may not be our hives; and his views in many points may be different from ours; yet the thoughtful bee-keeper will derive many useful lessons from his pages. We might instance one point. In this country there is a dictum to be found in all our text-books on bee-keeping 'that every pound of wax is produced at the expense of about twenty pounds of honey;' this, however, has no deterrent effect on the Doctor, who asserts that it is in the power of the rational bee-keeper to have more wax than honey. This he would attain by cutting the comb as much as possible in spring and after the swarming time, and by the largest possible multiplication of stocks in summer and their reduction in autumn. Again, we have of late been favoured with teachings respecting the value of candy as winter food when such food may be necessary. In the 'calendar' of bee-keeping for January the Doctor thus gives his opinion on the matter:—'Solid or crystallised honey is very convenient for introducing in this way. Wrapped in paper, it may be pressed into any shape that the space to be filled may require, and is gradually dissolved and consumed by the bees if a little of it is uncovered by the passage. If we are short of honey and there is reason for being economical of it, pieces of candy may be kneaded among it. The sugar becomes milder and more soluble with the honey. In case of need candy alone may be put in in pieces; but when the colony is somewhat weak and when the hive keeps very dry the bees may be deficient in the necessary dampness and power to dissolve the sugar, and they may at last starve or die of thirst even on the pieces of candy.'

One great additional value is given to this translation by the numerous notes appended by Mr. Abbott. These are explanatory of technical terms, and sometimes are corrective of those statements by Dr. Dzierzon in which Mr. Abbott's experience has led him to a contrary conclusion. The work is much enhanced by having in juxtaposition the matured views of two such illustrious bee-keepers.

The work is enriched with numerous illustrations,—facsimiles of those in the German edition. There is also a copious and serviceable index. Altogether the work is worthily produced, it is carefully translated, and every pains has been taken to make it presentable to the English bee-keeper. We trust that it will find a place in the library of all bee-keepers, and that it will be the means of leading them to a more thoughtful study and beneficial practice of their favourite pursuit.—G. H.

* 'Dzierzon's Rational Bee-keeping; or, the Theory and Practice of Dr. Dzierzon, of Carlsmarkt. Translated from the latest German Edition by H. Dieck and S. Stutterd. Edited and revised by Charles Nash Abbott, [late] Editor of the 'British Bee Journal.' With numerous illustrations. (London: Houlston and Sons, Paternoster Square; Southall: Abbott, Bros. 1882.)

Echoes from the Hives.

Yelverton Lodge, Michenham.—'My bees throve wonderfully in a Giotto hive this summer, notwithstanding the badness of the weather.'

Norwich.—'As an old subscriber to the *British Bee Journal* I wish the *Journal* continued prosperity under the new management. I owe Mr. Abbott and the *Journal* all my knowledge of bee-keeping, which has become to me, not only a source of great pleasure, but also profit.—J. J. R.

Weston, near Leamington.—'I shall be pleased to give five shillings towards any testimonial that may be got up for Mr. Abbott. I think he well deserves it. I certainly consider myself much indebted to him in many ways.'—J. W.

Auckencrow, N. B.—'I have this winter four frame hives; but owing to the past season being so bad have no honey to meet current expenses.'—D. Cassels.

Sutton, Surrey.—'Bee-keeping this summer has been most unprofitable here. The old stocks have made no more honey than will keep them through the winter, and swarms have to be fed. On inquiry I find this is the case for miles round here.'—L. R.

Cheltenham.—'The mice are greatly injurious; they seem to drop from the clouds.'—T. B. B.

Osbournby, near Falkington.—'I was much obliged for the three old odd numbers of the *Journal* you gave me at Lincoln Show. I have taken the *Journal* since May 1878, but was so interested in the numbers you gave me that I should like one or two dozen more, if you have them, before the date named.'—W. PICKWORTH.

19 *Strathearn Road, Edinburgh, Dec.* 3, 1882.—*Bee Flower Seed.*—'I promised to send you seed of *Nepeta striata*, but the weather has been so detestable here that it has not ripened. I enclose, however, a few seeds of a garden balsam, which one of our professors here tells me is *Impatiens tricuspidata*, but I cannot find this in any gardening book I possess. It is an excellent *autumn* bee-flower, grows 5 feet high, and the plant covers a space 3 feet diameter, with a profusion of pinkish-white flowers. The bees emerge from the flowers covered with white pollen.'

Williamsgill, Dec. 15, 1882.—'I have only taken the *Bee Journal* two years, but have been much benefited by it, and always look forward to another coming. I read with much regret the late editor's farewell to his subscribers.'

Queries and Replies.

QUERY No. 535.—*Giotto Hive.—Winter food, and Spring Stimulation.*—1. The Giotto hive having two inches of space, but no inner wall between the outside wall and the frames, I found it very difficult to pack up the sides. In making new Giotto hives, would it not be best to have double walls; and if so, *ought the inner wall to fit tight against the side of the frames*, or ought one quarter of an inch to be left between, to lessen the chance of crushing bees when putting it in and out the frames?

2. I reduced the frames to six in number as directed by the *Bee Journal*. Each frame was about half full of honey (the greater part sealed), so that each hive contains nothing like so much as Mr. Cowan says is necessary (30 lbs.), perhaps not more than 16 lbs. May I with this, leave them till (say) the middle of February, and ought I then to slip in some flour-cake under the quilt?

REPLY TO QUERY No. 535—(1) The frames of themselves form an inner wall to the hive, and if shaving or straw be stuffed into the two-inch spaces between them and the hive-sides, nothing can well be better. Putting an inner wall to touch the frame-ends would cause very considerable trouble, as the least swelling of the wood would render the frames immovable. It would not be so bad if a quarter-inch space were preserved between the frame-ends and the hive-walls; but from my point of view, it is best as it is.

(2) It will be quite safe to leave the bees till February or March with 16 lbs. of honey in their hive, if sufficiency of food be the only necessary to success. If in the middle of February the weather will warrant it, the hive should be opened and some of the cells should be unsealed, which will be sufficiently stimulative for the time being, particularly if a little pea-flour be given daily in crocus flowers, or otherwise artificially. Flour-cake may be be given in spring, when the bees, by gathering from crocuses and other flowers, have given the hint that they are anxious to increase their numbers; but it will not be wise to give it in bulk, as is too freely recommended, because the bees will probably store it in the cells, where it may ferment and do mischief: with pea-flour outside the hive, and syrup upon or within it, the materials for stimulation will both be available only at such times, as the bees can get abroad, and under these conditions will be stored separately, and not as a pasty mixture.—C. N. A.

QUERY 536.—Will the sugar-candy commonly sold at about 4*d.* per pound do as well for bee-feeding in February as the prepared barley-sugar sold for the purpose at 10*d.*?—K. C. J.

REPLY TO QUERY 536.—The sugar-candy crystallized on string as sold at the shops is so very hard and so difficult to liquefy that it is doubtful if it would yield sufficient food for stimulative purposes in spring. It affords bare sustenance for bees as a winter resource, though water enters largely into its composition; but as time advances it shall have a full trial and shall be duly reported on.—C. N. A.

QUERY 537.—After covering everything for many days the snow has at last cleared away. On opening the entrances of hives I found them all completely blocked with dead bees, and as soon as the excitement caused by regained liberty ceased I drew out with a bent wire a large quantity of dead from each hive, an average of two good handfuls, and I know there are many more remaining in the hive that I cannot remove with the wire. Please tell me what would be best to do. If I remove floor-boards all the chaff-packing will fall out, and all stragglers be lost this cold weather. If some dead remained, would they be a nuisance or injurious to the live ones?

REPLY TO QUERY 537.—A few dead bees in a hive do no harm in cold weather when the living are inactive, but if the temperature be such as to enable the bees to move about they will do their best to get rid of what to them is an intolerable nuisance; and if they are blockaded they will suffer much injury and many will die through their worrying efforts to carry them out. Having removed all that the wire will draw forth, and if properly bent it ought to sweep the whole of the floor-board, it would be well to take hives into a heated room and treat them as recommended in 'Useful Hints' in these pages, when, although they may not carry all the dead out into the glass box in front of the hive, they will throw the dead that may be between the combs to the floor-board, and afterwards they can be drawn forth with the wire. Should a fine day give opportunity, the hives should be opened, when a thorough clearance can be made.—C. N. A.

NEW BEE-FOOD.—Can any reader of the *B. B. J.* tell how to mix (what proportions) the new bee-food mentioned in Dr. Dzierzon's work?—E. B.

NOTICES TO CORRESPONDENTS & INQUIRERS.

THOMAS SMITH, *Weardale.*—As you apprehend that the continuance of your contention would lead to 'a needless waste of our valuable space, and be neither interesting nor instructive to our readers,' we should prefer that the correspondence should at once cease. Your 'Roland' would provoke an 'Oliver.' We are not desirous that our columns should be needlessly occupied; the more so, as the matter in dispute commenced before our acceptance of office.

BEE, *Cumberland.*—Thanks for communication.

G. W. COXON, *Nottingham.*—We were very pleased to receive your communication; but your kind suggestion has been anticipated, another subscriber having given us instructions that the bee-keeper who was obliged to give up the *Journal* through failure of work should be supplied with it till the arrival of better times.

J. F. STRONG, *Coventry.*—The top bars of frames as designed by the late editor of this *Journal* have their end-widenings on alternate sides, thus [redacted] They are now in general use in England, but in Scotland some of the manufacturers have the widenings reversed.

H. H. S. H. will receive a communication.

Rev. G. SHIPTON.—We are obliged by your suggestion. We think it very desirable that it should be carried out.

THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

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Editorial, Notices, &c.

FEBRUARY.

The question of the best means of instructing cottagers in the art of bee-keeping is brought specially under the notice of bee-keepers this month by a paper read by the Rev. W. E. Burkitt at the Quarterly Conference of the British Bee-keepers' Association with the representatives of County Associations. No subject could be more congenial to such a meeting. The objects of the British Bee-keepers' Association are, as is well known, 'the encouragement, improvement, and advancement of bee-culture in the United Kingdom, particularly as a means of bettering the condition of cottagers and the agricultural labouring classes, as well as the advocacy of humanity to that industrious labourer, the honey-bee.' The County Associations have, we believe, without an exception taken up the note from their parent, and have adopted her phraseology in their rules and circulars. The subject must, therefore, be of interest to us all.

Mr. Burkitt's opinion is clearly *this*, that personal contact with the cottager is the *best* means of instructing him. What did the cottager say to Mr. Burkitt when the latter had taken an artificial swarm for him the day after a lecture? 'There, master, you've done me more good in five minutes over that job than if you'd been all night a-talking up at school.' And what is Mr. Burkitt's own reflection upon this incident? 'I am sure,' he says, 'that more good is done in this way (*i.e.*, by personal visitations and conversations) than in any other way.' Mr. Burkitt also suggests a scheme through which every cottager belonging to a County Association may be thus visited and instructed. 'It seems to me,' he says, 'that unless an Association can afford to indulge in a professional "expert" who can devote nearly all his time for nine months in the year to visiting bee-keepers (which few can on account of the expense), the county should be divided into five or six districts; and the honorary district secretaries should make it their business (*as far as their professional engagements will admit*) to get acquainted with all the bee-keepers in their district, and go among them as much as possible, doing a little "*expert*" work at times, and giving a lecture now and then as opportunity offers.'

That such a scheme is not impracticable is proved not only by the fact that it is in operation, and in, we are sure we may add, *successful* operation, in Wiltshire, but also from what took place at the Annual General Meeting of the Devonshire Bee-keepers' Association held at Exeter on the 12th of January. Here a gentleman of independent means (Captain Gilbert, R.N.) came forward and solved the question, 'How cottagers can best be instructed in bee-keeping,' in the most summary manner—viz., by voluntarily taking upon himself the duties of an expert. Devonshire and Wiltshire are, indeed, most fortunate Associations to number amongst their members men of so much public spirit and philanthropy. If such gentlemen can be found in every county there will be little room for the suggestion of the worthy secretary of the Caledonian Society (see page 184 of the present volume of the *Bee Journal*), that 'Government should appoint experts in each county, so that honey should not be one of our imports.'

We ourselves have never had much hope of Government aid for such Associations as ours; at all events, not for the present. When we have made bee-keeping a national industry, we may perhaps receive some recognition and assistance from the Government; but we must rely upon our own exertions for some time to come. It is through the County Associations that the cottager must be reached and instructed, and each County Association must decide for itself what are the best means of accomplishing this object according to its circumstances and position. Our own opinion on the subject may be gathered from a paper read at Exeter on the 12th of January; but at the time when we wrote that paper we were quite unprepared to find gentlemen of independent means undertaking either to do the work of an expert for a whole county, or to share that work between them in a county subdivided into districts.

One error into which Mr. Burkitt has fallen we must ask leave to correct. He speaks of a professional expert engaged by a County Association spending nine months of the year in visiting the members. This should not be allowed. One month in the spring, and one in the autumn, should be quite sufficient to ensure a complete visitation of the members at their homes. Then as regards the expense of an expert. We still maintain that an expert who can be trusted to receive subscrip-

tions more than pays for himself. But independently of this, we would ask the committees of County Associations if it be granted that the object of their existence is to instruct cottagers in the art of bee-keeping, and that this can best be done by the personal visitations and verbal instructions of an expert, in what way their funds can be more legitimately or more usefully expended.

We would, therefore, still impress upon all County Associations the importance of instructing their cottagers by means of experts, either volunteer or professional, and we can see no real difficulty in their so doing. In starting a new Association we should be inclined to make this our first task, and to let the County Show bide its time until the residents of the county were educated up to it. If the plan of sending round an expert is once tried, we are confident that the members themselves will not allow it to be dropped.

Mr. Burkitt, in his most excellent paper, having touched upon the machinery of the cottager's education in bee-keeping, goes on to speak of the sort of education which shall be given him, and whether the management of the straw skep should not receive equal attention with the bar-frame (or moveable) hive; but into this portion of his subject we must refrain from following him until next month.

'ECHOES OF THE HIVES.'

The portion of our *Journal* entitled the 'Echoes of the Hives' has not been the least interesting or the least useful of our labours. It has hitherto been employed as a receptacle for scraps of information, which could scarcely be dignified by being found ranged with the other more formal letters which are placed under the head of 'Correspondence.' In fact, generally speaking, these 'Echoes' have been fragments of letters never intended for publication, but sent to the Editor more in his private than in his public capacity; yet, as the writers were scattered over various parts of the kingdom, the information they conveyed of the prevailing weather and the prospects of bee-keeping was, to some degree, a fair reflexion of the state of bee-keeping from month to month. It has, however, been suggested to us, that these 'Echoes' are susceptible of improvement; and if we could calculate on the willing help of our readers, we see no reason why they should not prove to be a very important and instructive portion of our *Journal*. In order that this may be so, we are desirous of having an 'echo' in every county in England and Wales; and we should also be pleased to have the same from stations in Scotland and Ireland. By this means we might 'girdle' the land and so be enabled, in the course of time, to cast some light on those phenomena of bee-keeping which have hitherto eluded us. Of late years, we have seen the progress of Meteorology as a science: it has emerged from darkness into light. By the collocation of researches into the mean temperature of the various months, the prevailing winds, the amount of rain, sunshine, and cloud, the laws which determine these effects are being gradually and satisfactorily unravelled. We desire that something of a similar nature should be done for—(shall we say?)—Melissology; that it also should be 'attacked' and in time reduced to a science based upon na accurate knowledge and conception of its general principles.

In the month of April last, we remember how buoyant were all bee-keepers, how bounding their hopes of a prosperous season. Swarming was in full operation, the supply of blossoms was unprecedented, the weather was propitious; supers, even, were being filled with extraordinary rapidity; everything appeared full of promise and success. But May, with its 'chill blast from Eurus' mildew wing,' and its cold, dry, easterly winds, came blighting and demolishing all the fond hopes of bee-keepers; and then came a sad and almost a total collapse. The nectarous properties of the flowers evaporated, the secretion of honey was checked, and the stocks that had been in so encouraging a condition dwindled and declined. Shall we ever be able to account for these mutations or expound the law which determines them? Shall we be able to discover why in some districts the honey harvest was bountiful, and in those adjoining it was altogether the reverse? Perhaps, in the fulness of time, after much painstaking trouble and thorough earnestness of pursuit, we may be enabled, in some degree, to solve these problems, and so elevate to a higher position the calling in which we take so much interest. Now it has occurred to us that these faint 'echoes,' wafted to us from 'a' the airts the wind can blaw,' may be of some assistance to the sought-for end. The matters treated of in them should be the condition of the weather, climatic and aerial influences, the rainfall, the temperature, the state of honey-bearing trees and flowers, honey prospects and harvests, the progress of bee-farming, and information of any and every kind which might prove interesting and acceptable to the bee-keeper. It would also be desirable to have information of the progress of humane apiculture in the various districts; and cases where cottagers have obtained a profit from their hives should be sought out and duly chronicled. We feel that we have put forth a somewhat ambitious and arduous programme; and to carry out its details we require the assistance of earnest volunteers. Where shall we look for the required assistance? The Hon. Sec. of the B.B.K.A. has faith in the working of County Associations; and, following instinctively the direction indicated by him, we look to hon. secretaries, with their district secretaries and experts, to acquire, collocate, and forward the information that is desired. We have already the names of several intelligent bee-keepers who have expressed their willingness to help us in this work, and we expectantly look for others.

We may further say that it would be desirable that these 'echoes' should be forwarded to us REGULARLY every month—say not later than the 24th; that they should be of uniform length, from fifteen to twenty lines; and that the information should be given as concisely as possible.—G. HENDERSON, *Ealing*.

BEES AND FLOWERS.

I cannot too earnestly advocate attention to the cultivation of spring flowers, that bees in their early flight may have an opportunity of obtaining their natural and much-desired food as soon as it is sought for.

During an open winter, and in early spring, bees consume and require more food than when resting through a rigorous and prolonged winter season; and although the artificial preparations which are given to exhausted hives sustain to a certain extent, it is a question whether the subtle essences distilled by the wonderful alchemy of the flower can be successfully imitated or habitually substituted. In the summer, when bees have better weather for ranging and of gathering their food from the woodland, the field, and the farm, the plants grown in ordinary gardens, although deserving a certain amount of attention and consideration as affording ready and convenient pasturage in stormy or threatening weather, are relatively of secondary importance in the bee dietary to those comprised in the larger area of the meadows, heaths, or cultivated fields. But in the early months of the year the case is altogether different, for with the exception of a few precocious primroses and violets peeping out from warm banks, gorse and the pollen-yielding Salix purpurea and Pelasites vulgaris, and coltsfoot, our native flora presents but little to attract or profit the exploring bee; but, thanks to botanical contributions from countries more favoured than our own with early sunshine, there may be found within the range of our gardens many valuable and early blooming spring flowers that, fortunately, are but little affected by the frowns of our ungenial spring, and that still feel the impulse of their native season, and obedient to an acquired habit, bloom and gladden our gardens even while wintry weather lingers with us.

The unmistakable eagerness manifested by bees in early spring in visiting every little expanded flower may be received as an assurance of their appreciation of them, and justifies the suggestion I offer of the desirability of multiplying the vernal flora. Illustrating these remarks, at the time I write (20th January), the day being sunny, bees have already begun their quest for flowers, and have visited Crocus imperati and Chimonanthus fragrans. Although Chimonanthus fragrans is an early winter blooming shrub, grown generally against a wall, its singularly fragrant flowers are produced during January and February; it is almost too early to be of value to bees, but in my enumeration of early flowering shrubs it cannot be omitted; in an open winter it is still useful. Jasminum nudiflorum and Lonicera fragrantissima (the winter honeysuckle) are also very early in producing bloom, but their flowering season is more prolonged. Laurustinus, especially if given the protection of a wall, rarely fails to bloom during the present month; and the pretty little shrub, Andromeda floribunda, is unfailing in its gift of early blossoms; Mahonia aquifolia produces early and useful bloom. Amongst border flowers visited by bees, the Christmas rose (Helleborus niger) is the first to appear, and it continues to expand its large, handsome flowers during the first two months of the year, and is immediately succeeded by Helleborus orientalis and its varieties. Tussilago fragrans, as its name implies, is a fragrant and very early winter and spring blooming plant, often called the winter heliotrope; it can be grown in any unconsidered corner of a garden. Eranthus hyemalis, winter aconite, a plant humble in its proportions, but exceedingly hardy and floriferous, belongs to the earliest section of flowering plants suitable for bees; it thrives beneath the shade of trees, and in strong soil, and bees travel far to find its rich golden blossoms. Crocus imperati and suaveolens are very early blooming species, and valuable to bee-keepers on that account; the value of Croci generally should lead to their multiplication in all gardens where the wants of bees are a consideration.

Anemona blanda, from Asia Minor, blooms during the second and third months of the year, and is greatly sought by bees. A beautiful associate, Chionadoxa luciliæ (glory of the snow), from mountains near Smyrna, is of rather recent introduction, and I cannot speak with assurance of its value in the bee flora, but its promise is great. Arabis albida is well known and esteemed; the early variety which blooms in February should be added to the list of useful bee plants; there are also very early kinds of Aubrietia græca, which have the same properties as Arabis; both of these continue to bloom during the spring months. The two beautiful Scillas, bifolia and Siberica, appear in February and March, and, doubtless, contribute in some degree to the store of the bee, as their visits to the flowers are frequent. The varieties of early primrose, the snowdrop, and Russian violet, may be named in enumerating the earliest gifts of spring; and the wallflower, which has this winter produced its bloom freely, and being of undoubted value, will contribute greatly to the support of bees during the spring months. I have secured a very early yellow variety. Apiarian horticulture is, perhaps, a new idea; the extension and improvement of the bee flora is an object that may justly commend itself to the notice of travellers, and all those who have opportunities in the possession of gardens of gathering together experimentally the plants that may be of value to the honey-bee.—W. Ingram, *Belvoir*.

P.S.—I look forward to the time when acres of honey-yielding plants will be grown expressly for bees, and when railway-banks and embankments will be utilised for the purpose, and when, by any chance in our village allotments or about farms, there happens to be unoccupied ground, the wants of the bees will be thought of, and the space promptly filled with seed turnips, mustard, or brassica, or a similar crop, which may prove doubly profitably.

The chance neighbourhood of the Lincolnshire seed grounds, where turnip, mustard, and other cruciferous plants, were extensively grown, enabled bee-keepers in the locality to exhibit the finest display of honey of the season at the Sleaford and other shows.—W. I.

CYPRIAN AND SYRIAN BEES.

Acclimatisation, Peculiarities, Liability to Dysentery, &c.

These Eastern varieties of the *Apis mellifica* having been largely introduced into this country within the last two or three years, through the efforts of Messrs. Jones and Benson, and by means of the visit to their apiary in Cyprus by our own expert, Mr. Blow, they would seem to demand a little more notice in the columns of the *Journal* than they have hitherto received. Struck with their beauty both of colour and form, and their restless activity, I was a purchaser of several imported queens during the last year, and should like to state my experience, as far as it goes, and for what it is worth, as being short.

In the American journals, and elsewhere, I have carefully read the views and opinions therein expressed, and, bearing all this in mind, have endeavoured to arrive at the truth of the matter, as regards their good or bad qualities, by comparison, and actual observation, unbiassed by the statements of their advocates or detractors. Commencing in April of last year, I was careful to introduce my first queens to strong and prosperous colonies, in order that they might have a fair trial. Soon the population of these stocks began rapidly to change their colour, and on bright days numbers of the golden offspring of these treasured queens were to be seen sunning themselves on the alighting-boards, and making short excursions around, most easily distinguished from their dusky comrades of the original stock, and by their slender and elegant shape, and their waspish flight, so different from the slow and measured motions of our English bees. These bees never hover around the entrance before entering, but dash in at once with their loads of pollen or honey. Of their energy and working qualities there can be no doubt.

During damp and cloudy days, when no other colony was at work, they were carrying home the pollen as freely as in the finest weather. I noticed, however, that the young bees never began work in the fields until about three or four weeks old.

The queens were all most fertile, and quickly filled their hives with brood; but, owing to the unfavourable season, stored no honey. Although the hives were overflowing with population, and a large quantity of pollen was stored, it would have puzzled a careful observer to find a single sealed cell of honey, whatever was stored being chiefly placed over pollen and left unsealed, and this continued throughout the season, and even during the autumnal feeding in September and October, previous to going into winter quarters. Still no honey was sealed, the combs were clogged with pollen, and, mark the sequel, dysentery immediately appeared in three of my Eastern colonies; and in less than a fortnight, the weather being cold, the population of these hives—which was equal to supplying a heavy swarm from the parent stocks, had it been the month of June instead of October—dwindled to a mere handful, and with difficulty I saved the queens by unions with other stocks. Throughout the attack the bees, in all weathers, would either take their flight in a straight line from the hive, never to return, or, swollen and dying, covered the ground around the hives, a piteous sight to behold. One stock only proved an exception to this rule, and that was a strong colony to which a Syrian queen had been introduced only in the month of August, and which at the present time consists of half the original black bees which, I imagine, keep in rest and quietude the disturbing element introduced by the Syrian blood.

While writing this article a letter from a large importer of Syrian bees has reached me, inquiring whether my Eastern bees are dysenteric, and remarking that his are all so, but that his other stocks, of various races, are at present quite healthy.

Dr. Dzierzon, in his preface to the English edition of his *Rational Bee-keeping*, remarks on the introduction of Cyprian bees into Germany:—'These were welcomed with great enthusiasm on account of their beautiful colour, but they have shown themselves very spiteful and difficult to control. They prolong the deposit of brood into the autumn, and, after middling years, are, at the end of the honey-season, for the most part, rich in bees and poor in honey. The author, therefore, decidedly gives the preference to the Italian bees, which he introduced nearly thirty years ago, and which are characterised alike by beauty, gentleness, and industry.'

Mr. Sissons' letter of advice in your last issue, respecting the keeping Cyprians quiet during the winter months, goes far to prove their restless irritability; and in my own apiary, amongst thirty-four other stocks of Italian, hybrid, and black bees, there is not a single case of dysentery.

We may, I think, sum up by setting down the Cyprians and Syrians—since they are much alike in all points—as;—

1st. Extremely prolific. 2nd. Excellent honey-gatherers—which are their good qualities; but 3rd, extremely vindictive, and difficult to handle; and 4th, more liable to disease, especially dysentery—which are their bad points.

The question to be decided is, whether these qualities balance each other sufficiently to render these bees a desirable acquisition to the English bee-keepers. My own feeling is that they do, and I should be sorry to see them given up without a full and fair trial. I have always thought that the Egyptian bee did not receive a fair trial when cultivated some twenty years ago by Mr. Woodbury and Mr. Lawe, these gentlemen being thoroughly disgusted with its extraordinary vindictiveness and propensity to use the sting. Indeed, there is a doubt in my own mind as to whether Cyprians and Egyptians are not one and the same race, since all the descriptions of the one—at least which I have read—tally with those of the other.

However this may be it would ill accord with the proverbial endurance and perseverance of Englishmen to give up this splendid and beautiful race of bees, conquered by its stings, and disheartened by its delicacy of constitution, before it has become thoroughly acclimatised. There is no race of animals

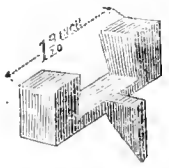
or insects which can be removed from a hot to a cold climate with impunity. Much care is necessary for carrying out experiments of this kind, and several generations must have passed away before acclimatisation can be fully accomplished. The Italian bee even now does not winter so well in our climate as the Black or German bee, but the extraordinary fertility of its queens amply compensates for this slight disadvantage.

After a time, therefore, I cannot but augur a successful future, even in this uncertain climate, for the Cyprian and other Eastern species, and especially for its offspring to be derived by crossing with the Italian, German, or Carniolan races.—George Raynor, *Haxleigh Rectory, January* 15, 1883.

DR. PINE'S SELF-ADJUSTING REMOVEABLE FRAME-ENDS.

The decision of the Frame Committee of the British Bee-keepers' Association not to recommend any one method of keeping the distance either lateral or longitudinal of the Standard frames prevents them from being universally interchangeable owing to the variety of methods adopted by various hive-makers.

By an invention which has been brought before the bee-world—for the first time at the South Kensington Show, 1882—under the name of 'Dr. Pine's Removeable Frame-ends,' this difficulty is overcome. These moveable frame-ends have been favourably received by the public. They were awarded prizes at the South Kensington, Shropshire, Cornwall, Wilts, and Herts Shows. They are fast displacing distance-pins and staples; and some hive-manufacturers are fitting up all their hives with them. By the use of these ends all frames of whatsoever pattern, provided they are of the same size within the rectangle may be readily rendered interchangeable. All that is necessary is, in the case of distance-pins or staples, to draw them, in that of single-shouldered, or Z frames to cut off the shoulders, then slightly shave the ends of the top bars so as to slide tightly into the new removeable ends. Thus are formed double-shouldered frames, interchangeable with wooden double-shouldered frames, and with the distances, both lateral and longitudinal, kept without possibility of derangement. For extracting the ends may be removed, leaving the top bar with no projections, and allowing the combs to lie flat against the cage of the extractor.



USEFUL HINTS.

February is the month when preparation for the events of the coming season should be begun in earnest. The winter hitherto has been unusually mild, and flowers, not generally in bloom until near the end of the month, are now tempting the bees abroad, too often, alas! to their destruction; and over-anxious bee-keepers, in too many instances, lend themselves to their undoing by unwisely adding artificial temptations to the abnormal stimulus existing.

The blooming of crocuses usually marks the time for spring stimulation to commence, and it is reasonable to believe that the causes which have led to their appearance and to activity amongst the bees, being natural, are beneficent; but experience with bees, as with flowers and plants, in this peculiar climate, warns us that though 'natural' they are not seasonable and must be treated as phenomenal. Such times are very trying to bees, for, influenced by the income they obtain, trifling though it be, they arouse to activity in the natural belief that greater store will presently be at command, and they commence breeding as if balmy spring-time had arrived, though at any hour they may be overtaken by a nipping frost and be forced for self-protection to condense to the smallest compass, leaving their brood to perish while themselves will be less able to bear the rigour through the loss of physical power consequent on their late undue activity. A similar condition of things often occurs in April or May through a sudden spasm of frost, but at that time there will generally be a good supply of young bees in the hive that will be better able to bear the strain than are the aged that now inhabit hives, and at most there will be little lost but the brood on the skirts of the cluster; but should a sudden frost set in after breeding has commenced at this early date, the consequences will be very serious. Naturally, bees are very loth to desert their brood, and when first forced to cluster through cold, they do so but loosely; but as it becomes more severe they shrink together more closely in the centre, leaving, as it were, an outer shell of bees that have become too much benumbed to follow the receding body, and these die through cold and starvation, a fact that will account for the throwing out of many dead bees, as well as chilled brood when sudden frost following mild weather, has departed. With these ideas in mind, I would strongly advise that for the present the activity of bees be not encouraged, but that by shading the hive entrance and by keeping them as quiet as possible, they may be induced to keep within doors and save their strength for a more congenial future.

Preparation.—Though, during mild weather at the beginning of the month, the bees are best at rest, it behoves the bee-keeper to get as quickly as possible into a state of readiness for the coming campaign. Hives should be provided in good time and thoroughly painted, and all the etceteras put in order. Foundation should be ordered, but it would be better not to fix it into frames until it is likely to be soon wanted, or it may become dry and brittle, when the act of hiving swarms may cause it to break from the frames and lead to disappointment and confusion. Honey jars and labels should be ordered that there may be no delay when the first crop is extracted. Seeds of honey-producing flowers should be obtained, flowering shrubs planted and cuttings stuck in preparation for the distant future when the planting of grown plants is considered too expensive. Willows may be propagated

in this way, and will in a year or two, if the right sort be selected, amply repay the little trouble bestowed on them; and the same may be said of the red flowering currant and sundry other available sources of bee food, which year after year almost every bee-keeper wishes he had planted, but which he as regularly neglects at the time when the work should be done. The planting of ivy, one of the best late sources of honey supply, is very much neglected; but there are few who have not the power to plant this valuable adjunct against an outhouse, old wall, or ruin, where it will hide imperfections and help to preserve the buildings from decay. It is only necessary to take a bine that has a few incipient rootlets on it, from a wall or tree, and plant it with the rootlets under the soil, nailing it as if it were a grapevine to the object it is to cover, when it will be almost sure to grow and flourish.

Feeding Weak Stocks.—The reasons above given for keeping bees as quiet as possible at this particular time applies with double force to weak stocks which cannot afford to waste even the smallest amount of vital energy, to say nothing of losing the life of bees. Where feeding is absolutely necessary, the food should be given in the evening, and only as much at a time as the bees can appropriate in a few hours, so that after taking it into their hive, they may have time to become quiet before the morning; otherwise, under its exciting influences, they will venture abroad, and the weak stock will become weaker through loss of bee life.

Spring Stimulation.—Toward the end of the month (February) if the weather be fine, and the bees are gathering from the limited sources at command, they may be aided with food sparingly administered. Strong heavy stocks will not need syrup or other substitute for honey, for them it will be sufficient to slice off the caps of a few sealed honey-cells every day, when they will immediately appropriate their contents, and store it anew, an act which will be sufficiently stimulative to them, and if kept supplied with pollen or its substitute, they will be sure to commence and continue breeding.

Stocks not well supplied with honey will be induced to breed earlier and more largely if honey and pollen (or their substitute) be simultaneously given to them. It should be remembered that in the spring, provided the queen be a fairly good one, breeding will go on in proportion to the incoming of bee food until the full power of the queen is developed, or the brood-nest becomes occupied with honey either through its abundance generally, or because the increased population of worker-bees makes the income proportionately greater than the consumption. In early days, however, when the honey yield is very small, and its incoming barely more than the daily consumption, if the bees are stimulated to breeding by artificial supplies, it will be necessary to continue these supplies in daily increasing proportion until the natural supplies become sufficient, or there will soon be famine in the hives, and the colonies will be in danger of starvation. The reason of this lies in the bees' eagerness for breeding causing them, when food is coming in freely, to put forth their utmost power in that direction, so that the food is consumed as fast as it comes in, and a short cessation of supply is to them a grievous calamity. It is on this account that careful writers advise during the breeding season, that bees should be fed on every day when from any cause they are unable to obtain supplies from outdoor sources. There is, however, a phase connected with the present system of bee-management that ought not to be overlooked when spring stimulation is the subject under discussion; and it is the fact that the judicious use of comb foundation shortens the time, and reduces the labour of bees in comb-building by more than one-half, and practically puts swarms 'in the field' a whole fortnight sooner than they would be naturally without it, so that there is not now so great a necessity for early stimulation as formerly existed.

Early Swarms.—With the foregoing in mind, and with the knowledge that by the aid of comb-foundation a swarm can have its brood-nest in perfect order in a week without the necessity for gathering an ounce of honey (that the bees take with them in their honey-sacs being as a rule sufficient), the question forces itself upon us, 'Is it wise or prudent to cause the productions of swarms at so early a date that they will require to be fed while waiting for the blossoms that are to afford them occupation and sustenance. the bees in the meantime becoming aged and worn, and daily reducing in numbers?' The essentials to successful bee-keeping are a knowledge of when the honey crops will be ready, and the ability to cause large populations to be ready to gather them; and as every bee-keeper must determine for himself when those times will arrive, so he must also determine the date when it will be necessary to commence the stimulation of his bees.

Stimulative Food.—Thin syrup composed of three pounds of loaf sugar boiled in two pints of water (with a half wine-glassful of vinegar) until all is dissolved, will answer well, an excess of water being an advantage in the breeding season. It should be given slowly and continuously by any of the means now so well known, averaging per day from two or three ounces to half a pound at the beginning, and gradually increasing according to the strength and growth of the colonies. Barley-sugar is also stimulating, but when given it would be well to give also a supply of water, in the same way that syrup is given, or in dry hives the bees will run many risks in searching for it out-of-doors. It must, however, be given in small quantities of a few ounces per diem, or it will liquefy too fast and run about amongst the bees. Sugar-cake may also be given (with a water supply as just recommended), but with either of the foregoing artificial pollen should also be comeatable by the bees. Flour-cake (with water as above) is in itself stimulative; in fact, whenever given it is almost certain to induce breeding (except during the queen's autumnal rest, when it would be wrong to give it), but there is no advantage in its use over the same ingredients given separately.

Artificial Pollen.—Pea-flour, such as is used in making pea-soup, is the best known article

for the purpose. A little put into crocus bells will soon give the bees a taste for it, and then they will readily take it from any vessel in which they can get standing room. An old skep partly filled with wood shavings, the pea-flour being sprinkled upon them, is one of the simplest and best arrangements, but it should stand in a warm sheltered situation.

Robbing.—Very great care is necessary at this time of year in feeding bees lest the food be made attractive to bees other than those for whom it is intended. The entrances of fed hives should be narrowed, and the food covered up, so that stranger bees cannot get to it. Any spilled syrup should be wiped away, and it would be well to dab the spot with a feather dipped in crude carbolic acid, the vapour of which the bees dislike intensely.

Queenlessness.—On a fine day stocks suspected of queenlessness should be examined, and if found queenless should be united to adjacent hives. If not so treated they may become schools for robbers, and bees once educated in that vice are not easily reformed.—C. N. Abbott, *Southall.*

ABBOTT TESTIMONIAL FUND.

The following additional subscriptions have been received :—

	£	s.	d.
T. F. Ward, Esq.	1	1	0
The Baroness Burdett Coutts	1	1	0
Thos. W. Cowan, Esq.	1	1	0
W. Mantell, Esq.	1	1	0
Col. R. E. Oakes	1	0	0
Sir John Lubbock	1	0	0
H. G. Morris, Esq.	0	10	6
Mr. Chas. Tite	0	10	6
Mr. W. H. Dunman, jun.	0	10	6
Mrs. R. E. Neave	0	10	0
Col. Merrick	0	10	0
W. Carr, Esq.	0	10	0
Rev. J. Lawson Sisson	0	10	0
Rev. G. Raynor	0	10	0
Mr. F. Bennett	0	10	0
Miss E. Preston	0	10	0
Mr. J. Bolton	0	10	0
Mr. C. L. Neave	0	5	0
Mr. G. Hallam	0	5	0
Mr. J. Partridge	0	5	0
Mr. P. Macpherson	0	5	0
Rev. J. W. Napier	0	5	0
Mr. R. Thorpe	0	5	0
Mr. W. Tait	0	5	0
Rev. N. Ogilvy	0	5	0
Miss Gayton	0	5	0
Mr. J. Hale	0	5	0
Mr. J. N. Bower, Esq.	0	5	0
Mr. A. Rusbridge	0	5	0
Mr. F. Lyon	0	5	0
Rev. T. B. Garland	0	5	0
Mr. S. Simmins	0	5	0
Mr. A. G. Radcliffe	0	5	0
Rev. J. H. Dixon	0	5	0
Mr. W. Wilkes	0	5	0
Mr. C. T. Overton	0	5	0
Mr. W. R. Fox	0	3	6
Miss Phillimore	0	2	6
Rev. W. E. Burkitt	0	2	6
Mr. J. Rodham	0	2	6

In last number, *for* R. T. Partridge, Esq., 1*l.*, *read* 1*l.* 1*s.*

It is requested that the remaining subscriptions to the above Fund be forwarded to Mr. J. Huckle during the present month.

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATIONS.

The annual general meeting of the members will be held at 105 Jermyn Street, on Thursday, February 15, at 4 o'clock in the afternoon, the date having been changed from Wednesday, the 14th instant, in order to suit the convenience of the clergy, who are unable to leave their parishes on a Wednesday in Lent. The chair will be taken by the Baroness Burdett-Coutts, President of the Association.

The next committee meeting will be held at 105 Jermyn Street, on Wednesday, Feb. 21st, at 4 o'clock. Notices of motion for this meeting must be sent to the assistant-secretary not later than Thursday, the 15th.

Quarterly committee meeting held at 105 Jermyn Street, on Wednesday, January 24th, present—T. W. Cowan (in the chair); Rev. E. Bartrum, Hon. and Rev. H. Bligh, J. M. Hooker, H. Jonas, D. Stewart, W. O'B. Glennie (treasurer); and the assistant-secretary. The following county representatives were also present—viz., Mr. G. Allen, and Mr. J. Garratt (Kent); Rev. F. G. Jenyns, and Rev. Astley Roberts (Hertfordshire): Rev. W. E. Burkitt (Wilts). The minutes of the last meeting were read, confirmed, and signed. The balance-sheet for the year ending December 31st was also read, showing a total on both sides of the account amounting to nearly 900*l.* The balance-sheet and report will be published in our next issue. It was resolved—'That in future notices of the quarterly meeting should appear in the *B. B. Journal,* in place of sending notices by post to the county secretaries and representatives.'

The honey-market sub-committee presented their report in reference to the future management of the sales of honey produced by members of the British and Affiliated Associations. Resolved—'That the same be adopted, and that the necessary forms be prepared.' In accordance with a resolution passed at a former meeting, the chairman submitted the following rules as suitable for the formation of village bee clubs:—

In Affiliation with the ..... Bee-keepers' Association.

1. The object of the club shall be to induce cottagers to take a greater interest in bee-keeping, and to offer facilities for the mutual interchange of ideas.

2. A club shall elect its own secretary, who will be the medium of intercommunication between it and the county association.

3. The members of the club shall meet once a-month to pay in subscriptions towards purchasing hives and other appliances upon terms to be arranged by members.

4. The secretary shall make arrangements for one or more lectures to be delivered during the winter months, and after the lectures discussions may take place.

5. Arrangements should also be made with the parent society for the disposal of the members' honey.

6. As soon as funds permit an extractor should be purchased for the use of the members.

7. Any member may pay in at the monthly meetings any sum from 6*d.* upwards towards the purchase of hives or apparatus.

8. Members may at any time have hives of the value of the amount standing to their credit.

It was resolved—'That the chairman, Mr. Stewart, Mr. Garratt, Rev. G. Raynor, and the Rev. F. G. Jenyns, be elected as a committee to devise a scheme for the formation of such clubs.'

Conversazione.

Mr. Glennie was voted to the chair. There was a good attendance, including the following members:—T. W. Cowan, D. Stewart, Rev. E. Bartrum, Rev. J. H.

Dixon, Rev. A. Roberts, Rev. J. G. Jenyns, Rev. T. Sissons, Captain Gilbert, R.N., J. M. Hooker, Dr. Walker, S. J. Baldwin, G. Drinkwater, G. D. Haviland, J. Camaschella, F. Cheshire, F. Lyon, J. Garratt, G. Allen, G. Henderson, H. Jonas, W. A. Kirchner, &c.

The Rev. W. E. Burkitt, Buttermere Rectory, Wilts, having been briefly introduced by the chairman, proceeded to read the following paper—

On the Best Way of Instructing Cottagers in the Art of Bee-keeping.

I felt considerable hesitation in accepting your Hon. Secretary's kind invitation to read a paper on this subject before so many older and far more experienced bee-keepers. At the same time, having lived in the country all my life, and taking much interest in cottagers' pursuits—more especially in bee-keeping—I determined to do my best.

Now, though few people have a greater respect for cottagers, as a class, than I have, or had much more to do with them for some fifty years, and though I can always make myself quite at home with them, I must admit, that to instruct a cottager (at least, in ninety-nine cases out of a hundred) in anything—never mind what the subject may be—is a most difficult matter. It is just the same whether the subject is a religious or a secular one. As my old man often says, 'They be that pig-headed!' As a rule, they believe nothing that you tell them, and only half of what they see; unless, indeed, it is a 'wise woman,' a quack doctor, or a union delegate, who is talking to them. In such cases it is marvellous what they will swallow; all they hear then they take for gospel. Here and there, of course, one may find an exception. I know of several, certainly. Almost always they like to hear all one has to say; but (as they say in Wiltshire) they don't 'hearken,' that is, it goes in at one ear and out at the other.

All this applies, of course, to farm-labourers in particular, and not to the far larger class treated as cottagers in the Schedules of the British Bee-keepers' Association, among whom, it is well known, are many highly intelligent and advanced bee-keepers. But in an ordinary country parish they are scarce.

Perhaps some ask a few questions, and really seem interested, and you leave them with the fond idea that you have quite convinced them that your way is better than theirs. It is just possible that you may have done so; but don't be too sure, go again in the autumn, and the chances are, you will find, after all, they have been at their old game, and burnt half their bees, though you may, at their own request, have promised to drive them for them, and have put yourself to some inconvenience accordingly. 'Oh, John! how came you to do that, when I told you I would take your honey for you without killing your bees? You might just as well have cut down your apple-tree to pick the fruit.' 'Well, there, I'll tell 'e, sir. We've been main busy all along. We meant you to a' took 'em, but there, we druv it off, and the honey man he come along, and offered a half-penny more than last year; so we took and stifled them and sent them along.' 'Well, John, I should like to know what he gave you.' 'Oh, 3½*d.* per lb.' So there were five or six stocks of bees, comb, honey, and all, sold for a sum that any two of them ought to have yielded, without loss of a bee, under proper management.

It is (as every one who has tried knows) a most difficult matter to persuade cottagers that any improvement can be made on the plan which they and their mothers and grandmothers have followed, unless you can touch their pockets. Once prove to them that a thing pays, and there is a good chance of their trying the plan themselves; but even then it is hard to get them to work according to rule. One old bee-keeper I know, who, after helping me a good deal when extracting, driving bees, and making up stocks from condemned bees, told me he meant to make a bar-frame hive during the winter. So I offered to lend him one for a pattern whenever he wanted it. But the old fellow thought he knew enough without troubling about the pattern, made two wretched boxes with frames of uncertain size and shape, hanging like a bunch of carrots in his hive. Both he and his 'old missus' were very proud of his performance. He next persuaded some of his neighbours (quite late in the year) to let him drive some of their stocks. So far he got on very well: they kept the honey and comb; he had the bees for his trouble. He took them home rejoicing, united them, and put them into his boxes with strict orders to build comb—unaided by 'foundation.' By the end of November he found they had done very little (it was a wet autumn) besides steadying his shaky frames effectually; so he gave them a few handfuls of moist sugar, and 'hoped they would do.' But they didn't, and he lost all, as might be expected, and this after seeing all the work in my own apiary, and laying out sixpence on *Modern Bee-keeping*. All he would say was, 'I wish I had heeded that book more, and all you told me. I'd sooner have lost five shillings than those bees.'

Many other cottagers, however, have really got on very satisfactorily, and their example will do more than anything else to advance improved bee-keeping among their neighbours. I take it that *example* is the one thing needful, and the example of a converted cottager is worth that of any six others. The question is how to secure him.

In theory the Hon. and Rev. H. Bligh's prize scheme seems to be a most excellent one, and in starting it he is worthy of the warmest thanks of all interested in advanced apiculture. I only wish I could speak of the working of it from my own experience, but there were insurmountable difficulties.

1. The nearest bee-keeper lives more than half-a-mile off, and so as much time would have been taken up going to and fro as would suffice to examine all my stocks at home.

2. The cottagers would seldom be at home between 6.30 a.m. and 8 or 9 p.m. during the busy season; nor his wife between 8 and 6, and then she would be too busy indoors to see what I was doing with the bees.

3. Any cottager in whose garden they were placed would expect 'a tip' for allowing it. They are naturally suspicious, and always have an idea that you want 'to best them.' They can't believe that you would take so much extra trouble from purely disinterested motives.

4. If my bees did better than his, or if his being weak got robbed by others, never mind whether my bees were the culprits or not, the cry would immediately be, 'Hang it all, parson's bees (N.B. parson's bees are always in the wrong) have clean done for mine, they have. Ne'er a morsel of good poor folk trying to keep bees near hissen. He goes and takes away all their honey and starves they, and then they are forced to go and rob other folks. I knowed hur were up to summat when hur wanted to put them here, I did.'

In most places all mishaps to cottagers' bees are laid to the parsons' charge, whereas, in truth, the said parsons, who did their best to help their neighbours, suffered much themselves from the vicinity of starving skeps.

These were my own reasons for not entering the competition. Another difficulty would have been obtaining the necessary inspection; and this was one which our Committee saw no way of getting over, chiefly owing to the expense of journeys. However, I am glad to see in this month's *Bee Journal* that seventeen competitors have entered the lists, so that the plan will be fairly tested, and, no doubt, do much in promoting improved bee-keeping among cottagers.

Another obvious plan is a series of lectures through-

out the country, both in towns and villages. The towns, chiefly with a view to interest the upper classes, who in their turn may interest others; and also to put it into the heads of some respectable tradesman to take up the manufacture, or at all events the sale of bee goods. I don't know whether many County Associations have started regular depôts. It is a risk, I fancy, hardly to be advised, unless funds are unusually ample; and in a large county like ours, not yet overrun with railways, two-thirds of the members would find it easier to get goods from London than from the depôt, wherever it might be. But it would surely be worth while for any tradesman in most towns to have one or two plain useful hives in his window, a gross of machine-made frames, a few hundred sections, and some 'foundation,' and printed lists of all kinds of bee goods, to be procured to order for cash only;—that, I am sure, is important.

The leading manufacturers deserve all credit for the excellent bee goods they have sent out, and as regards frames, sections, and foundation, smaller tradesmen cannot compete with machine work. But, in order to popularise improved bee-keeping, the expense of carriage must be saved as much as possible. I have myself taken much pains about this, and last winter I sent pattern hives to different carpenters in Wilts, and we have now several capable of turning out as good hives, and at the same price, as any of the well-known firms. One village carpenter, who took up hive-making two or three years ago, sent out last season upwards of seventy excellent frame-hives, and gained prizes at several of the leading shows.

This certainly is one way of instructing cottagers.

But to return to the subject of lectures, I cannot think that much good is done (at first, at least) by very learned and scientific ones; deeply interesting as they may be to many, and useful as part of a series, they must not be liable to be called dull or dry. In villages, at all events, they cannot be too homely; of course, wherever they are given they must be illustrated by the exhibition of some cheap, useful hives, and the most necessary appliances; and the audience should be made clearly to understand that all are invited to examine the exhibits, and ask as many questions as they like at the conclusion. It is a great advantage both to lecturer and audience to have one or two friends who will hand things round for inspection while he is talking, and draw attention to any special point, or afford any desired explanation. Lady bee-keepers can be a great help in this way, and, indeed, in many others.

Modern Bee-keeping should be on sale, and odd numbers of the *Bee Journal*, and Abbott's *Leaflets*, together with any price lists of bee goods, which, of course, manufacturers are only too happy to supply, can be distributed *gratis*.

The 'after meeting,' as it may be called, is far the most important part of the programme. Before the lights are put out two or three cottagers or artisans will be pretty sure to show themselves desirous of learning a little more; and it will be hard if some more advanced bee-keeper does not come forward and offer to lend a helping hand, and show the working of his own apiary to any of his neighbours. Never mind what time of year it may be, the lecturer should be prepared to give notice that he will be happy on the following day to visit any bee-keepers, especially cottagers and beginners, near at hand. In this way he will be learning himself as well as teaching. (I have picked up a good deal myself in this way.) Even in winter a little chat like this, over a crust of bread and cheese and a pipe, does good, though you may not be able to touch a hive. But if it happens to be at a time of year when the bees are working it is an immense advantage. The lecture won't do much permanent good without practical illustration. One old fellow, for whom I took an artificial swarm the day after a lecture, said, 'There, maister, you've a done more good in five minutes over that job than if you had bid all night a talking up at school. I'd never have believed it if I had not a seed it.'

And when one comes to think of it, it is no wonder if they don't believe, just because you tell them that a hive of bees may be turned up in the middle of the day with perfect safety. If they believe it at all, they say, 'Ah, your bees knows 'e. You must have been a main while training o' they like that.' But if they see you turn up one of their own, drive them, and handle them as if they were peas instead of bees, with no protection or precaution beyond one's faithful pipe and a few minutes' patience, they are generally convinced, though it may be some little time before they venture to make the attempt themselves.

I am sure more good is done and more members are gained in this way than in any other, and one makes a great many pleasant acquaintances oneself, and learns far more than if one was always pottering about with one's own bees at home. It seems to me that, unless an association can afford to indulge in a professional 'expert' who can devote nearly all his time for nine months in the year to visiting bee-keepers (which few can on account of the expense), the county should be divided into five or six districts; and the honorary district secretaries should make it their business (as far as their professional engagements will admit) to get acquainted with all the bee-keepers in their district, and go among them as much as possible, doing a little 'expert' work at times, and giving a lecture now and then, as opportunity offers. In Wiltshire all our six district honorary secretaries are able to do this. It is by no means a formidable undertaking, for, after all, the most useful, and, at the same time, most economical style of lecture is one on the village green, without any outlay for a room, lights, or advertising, beyond the cost of a big 'poster,' mounted like a map on a roller, and carried about from place to place, and then, when folk are leaving work, hang it on a neighbouring gate-post, or, still better, on some small boy's back, giving him twopence to run about with it. Then, first, having a homely chat with any who liked to come, and adjourning to some bee-keeper's garden near at hand to prove one's words; concluding the visit with an invitation to visit one's own apiary, and see the various appliances in common use.

Now, though I am as firm a believer as any one in the advantages of bar-frame hives, I do not think it wise to try and induce cottagers in general to adopt them until they have seen them in use, gained a little confidence, and got accustomed to handling their bees, and are so evidently bent upon improving in bee management, that they may be trusted to make an intelligent use of the new hive.

I will say nothing about badly made hives, for they are apt to lead to bad language, or, at least, spoil a man's temper; but, suppose a man set up with a thorough good, simple bar-frame hive, and a copy of that most useful little book, *Modern Bee-keeping;* if he goes by the advice given, all well and good, but the chances are he doesn't, and then what is the result? Why, something like this: I saw two or three such cases last year—not in cottagers' gardens but parsons'—who had paid some 2*l.* each for their hives. One had been in use for two years stocked with an early swarm in 1880, yet, strange to say, they had never had any honey. They 'supposed the gardener had not managed them properly' (more he had). A lecture the night before had awakened them to this possibility. The examination and rectification of that hive afforded me a very lively morning's work. I saw at once that the cover was all on one side, for the quilt had been shut in, and the wet followed. The hive was placed on an old claret case, put down in a hurry without any thought of its being level. On forcing off the cover with a trowel I met with a warm welcome (or, at least, reception) from the inhabitants; and, no wonder! for the cover was three parts full of the last season's

comb, empty of course; neither ticken nor quilt had been laid on, for the bees when first introduced being rather excited, and the gardener rather shy, these had been chucked in, and the cover clapped on in a hurry; and neither master nor man had ever ventured to touch it again to put matters straight; and as the poor bees did not choose to take the honey indoors, the family went without, and came to the conclusion that bee-keeping did not pay. In the next place, the 'dummy' and one frame had been taken out, to introduce the swarm, and not replaced; neither had the remaining frames been put in position, but left some one way, some another.

The hive, however, was full of comb (built diagonally of course, as the hive was not level) with much honey and brood, but, as may be supposed, in almost a hopeless state of confusion—every frame being more or less fixed to the sides or its neighbours. Such an experience is enough to disgust everybody with bar-frame hives, and it is just what is almost certain to happen, unless more care is taken than is usually bestowed upon skeps. Therefore, I say, if folk wish to do no more than shovel or shake a swarm into some kind of hive, and have no more to do with them till the autumn, by all means let them keep to skeps till they take more interest in the matter, or their expectations will not be fulfilled; they are sure to blame the hive instead of themselves, and be more convinced than ever that the barbarous old plan is the best.

I suppose I shall be thought a great heretic by many:—all the same, from Mr. Bartrum's remarks at the last quarterly meeting held in this room, and various letters that have appeared since in the *Bee Journal*, I believe many advanced bee-keepers will agree with me. When, however, I say, 'Let them keep to skeps for the present,' I don't for one moment mean the old-fashioned, dome-shaped ones—they are only fit for hiving swarms in—but a well-made, flat skep, with a three-inch hole in the top—guarded, of course, with queen-excluding zinc—and the sides as straight as possible, on which sectional supers may be worked. As to the size, no hard-and-fast rule can be laid down—in our own neighbourhood 14 ins. in diameter by 8 ins. deep inside, I am convinced is ample—whereas in many districts half as large again is not found too much. I think every advanced bee-keeper should make it a point of duty to have one or two such hives in use, for the sake of showing cottagers what can be done with them. It is always handy, too, to have one or two for driving at shows, in case there should be a difficulty, as there often is, in getting any for the purpose near at hand.

Those who really wish to promote better management among cottage bee-keepers can do a great deal in their own parishes, or on their own estates, by inviting bee-keepers to come and see any work they are doing in the apiary: it gives them confidence, for one thing, and they see how simple many operations are that they have read of, or heard about, but could hardly believe in. The sight of well-filled supers naturally makes them anxious to obtain the like. These little entertainments are very popular; I gave several last summer at a distance from home, at the invitation of some of our members, and very pleasant afternoons they were. At one farm-house I had no less than seven young ladies taking lessons in driving, and very apt pupils they were, and did good work afterwards in the village; and why should not other ladies do the same to some extent? their help is always valuable in all good works.

It would seem that in towns more is done in a general way to help the lower classes to useful and profitable employment of their limited spare time: Mutual Improvement Societies, Reading and Coffee-rooms, Lecture-halls, Penny Readings, Concerts—in towns; Cricket-clubs, Choir-practices, Cottage Garden-shows—in the country, all help to promote the good will and friendly feelings, and in a measure unite various classes. The management of all these demands a certain amount of time and self-denial, yet all find plenty of willing supporters. Everything that is worth doing requires time and self-denial; but anything that interests the lower classes, and brings them into communication with the upper, must do good, and no stone should be left unturned. Why, then, should not bee-keepers do the same in their way? for bee-keeping is not only a most interesting pursuit, but it encourages ingenuity and industry, and (except in very exceptional years) cannot fail to be more profitable than most of the schemes I have mentioned; it unites pleasure with profit quite as much as gardening does, and almost always, where there is a garden, some bees may be kept, to the great advantage of the fruit-grower, and the profit of the owners, in more ways than one.

Hitherto, even the most useful and popular bee-keepers' manuals have cut the skep question rather short, the bar-frame system being so far superior, and requiring of course more explanation. This, it is satisfactory to know, will receive more attention in the new edition of *Modern Bee-keeping*, for it is useless to ignore the fact that some form of skep will continue to be the general hive of the cottager for a long time to come. And it is most desirable to show them what can be done with the simple materials they have, and how, at a very small outlay, they may secure good section-honey on their old skeps, for it is in this form only that the highest prize is obtained for honey.

It may seem to some a retrograde movement (although I do not believe it would prove so in the long run), but would it not be worth while for the British Bee-keepers' Association to issue a few hints on the management of skeps in a separate form, at a cost of not more than a penny? A few pages, perhaps, might be reprinted from the new edition of *Modern Bee-keeping* that would answer the purpose, with just enough said at the end about the advantages of the bar-frame hive to induce people to aspire to that in time, stating most clearly the disadvantages of the skep, and that it is only to be looked upon as a 'makeshift,' and a stepping-stone to better things. The last page might set forth very briefly the general work to be attended to in each quarter of the year: such as, 1st, spring feeding; 2nd, restraining swarming if honey is the object, taking artificial swarms if increase of stock is desired; 3rd, the best mode of obtaining super honey; 4th, harvesting honey, uniting, and general autumn management.

It is, however, useless to give all these directions to cottagers unless we can put them in the way of obtaining suitable hives, supers, honey-bottles, &c. In this they must have external help, especially in out-of-the-way country places; and this I consider to be one of the most important functions of Bee-keepers' Associations, though I know well enough, from personal experience, that it involves a large amount of labour; but it should not be shirked. If associations buy such things wholesale from the large manufacturers, they can afford to supply small quantities at the usual retail prices, and the difference will pay for the carriage. Associations should also, I think, make arrangements for free carriage of cottagers' exhibits to and from bee shows; and every means should be taken to induce them to compete; and useful hives, sectional supers for use on skeps, slingers, &c., may be advantageously offered as prizes in the cottagers' class at all local bee shows. Pains must also be taken to get them customers for their honey as soon as they learn to put it up in saleable form.

As far as I can venture to give an opinion, 'the best method of instructing cottagers in bee-keeping' may thus be summed up:—

1. The delivery of lectures throughout the county. These may be divided into three classes: (*a*) Duly advertised ones, in a town-hall, or other suitable building, presided over by a popular chairman; (*b*) on a smaller scale in village schoolrooms; (*c*) very homely extemporised and quite informal addresses in the open air.

2. Dividing the county into several districts, with practical bee-keepers (not afraid of work) as district hon. secretaries, until the funds admit of the constant employment of an 'expert.'

3. The circulation of cheap but reliable bee literature.

4. Any bee-keeper inviting a few of his neighbours of all classes, in a friendly way, to come and see the operations of driving, extracting, transferring in his own garden, &c., either by himself or an expert, with a sort of running commentary on the proceedings.

5. Giving facilities for cottagers to obtain (without the expense of carriage from a distance) good hives, sections, foundation, honey-bottles, and bee goods in general, and providing good patterns for local tradesmen to work from, on condition of their using well-made frames from the best makers, instead of wasting their time in making inferior copies which cost as much.

6. And last, but not least, the extension of Hon. and Rev. H. Bligh's prize scheme.

I have now done my best in stating my own ideas as to the best methods of instructing cottagers in bee-keeping. I fear they are but meagre and common-place, but they are all founded on personal experience. I only wish the matter (which is a very important one) had been treated by far abler hands.

[The discussion on the above paper will be given in our next issue.]

BEE TENT ENGAGEMENT.

SUSSEX ASSOCIATION.

August 30.—Pulborough Flower Show.

COUNTY ASSOCIATIONS.

DEVON AND EXETER BEE-KEEPERS' ASSOCIATION.

The annual meeting of the above Association was held at the Guildhall on Friday, January 12, and there was a large attendance. Among those present were the Right Worshipful the Mayor (Alderman S. Jones), the Earl of Devon, the Hon. and Rev. Prebendary Courtenay, Sir J. H. Kennaway, Bart., M.P., Colonel Walrond, M.P., Alderman W. H. Ellis (President of the Association), General Hanson, Admiral Moorman, Captain Gilbert, R.N., Rev. J. G. Dangar, Rev. P. Williams, Rev. J. Bartlett, Rev. J. Dickinson, Rev. J. B. Williams, Rev. Herbert R. Peel, Rev. T. F. Boultbee, Rev. F. T. Salmon, Messrs W. N. Griffin, Church, Thacker, Donisthorpe. A. J. Mackey, Cowan, G. M. Ford, S. Ford, Wivell, Gray, C. J. B. Sanders, &c. Lady Anna Maria Courtenay, Mrs. Ellis, and other ladies, were also present.

Mr. W. H. Ellis, the President, thanked the Mayor for placing the Guildhall at their disposal, and expressed the pleasure with which they welcomed the presence of their patron, Earl Devon, and also the Rev. Herbert Peel, the representative of the parent society in London. He congratulated the Society upon the progress that that and similar associations were making in the art of scientific bee-keeping. During the past year the Association had done a great deal. It had held very many successful meetings, and although it had not done all they could wish, yet, on the whole, it had had a favourable influence. To him it was a very great pleasure to see how that Association prospered. When first started it numbered no more than twenty members, but now he believed they had nearly 200 members. That was very gratifying to all of them, and he felt sure that if they went on in the future as they had done in the past, very shortly they would have one of the best Associations in the kingdom.

The Council, in their seventh annual report, stated that the past year has been characterised by much success in the direction of the development of apiculture, notwithstanding the fact that the weather of last summer was inclement, and therefore adverse to large honey harvests. With regard to the operations of this Society during 1882, the pecuniary assistance given by the Horticultural and other Associations, in conjunction with which bee shows have been held, has tended in a very large degree to minimise the expenditure of the funds of this Association. In this respect it has been particularly fortunate. At many village and other flower shows apicultural manipulations for the practical instruction of those who care to learn the principles were invariably accompanied by short lectures and addresses. Each different set of visitors to the bee-tent, as a rule, heard some new principle enunciated, and viewed some different aspect of the work. Thus far the Council have been obliged to rely on the kind and ready assistance of the British Bee-keepers' Association in providing a tent. It has been decided to purchase a new one for this Association, at a cost of about 24*l.*, and it is hoped that the necessary funds will be speedily forthcoming. It is anticipated that such an addition to the apparatus of the Society will very essentially advance its usefulness. The Council, at the commencement of last year, purchased a lecture-box, consisting of a strong case—capable of bearing the wear and tear of railway travelling—to contain a model improved 'Griffin' hive, with the fullest appliances, together with diagrams illustrative of bee life and work; it has been found very useful to have these aids to lecturing in so compact and manageable a form. It was impossible to comply with the invitations which were given to this Society to hold shows on a large scale at Ilfracombe, Exmouth, and Huish. The field, therefore, in these localities is open for the coming year. Not only has it been the object of the Council to help bee-keepers within the limits of this Association, but to assist other Societies. More particularly has this been so in the case of the Cornish Association. The Council being desirous of noting the exact progress of bee-keeping among its members, issued return post-cards in December last, asking for statistics of the total number of stocks owned on November 1, 1882. [The result of which will be found in the history of the Association in March number.] Exhibitions were held at Torquay on May 15, 16, and 17, in conjunction with that of the Devon Agricultural Society, which contributed a sum of 10*l.* for prizes, and provided shedding and table space for the exhibits; at Barnstaple on June 28 and 29; at North Taunton on July 25; at Ottery St. Mary on August 9; at the St. David's (Exeter) Cottage Garden Show on August 19; and at Plymouth on December 12, 13, and 14. Various lectures were also delivered. The Council, in conclusion, trust that the bee-keeping in the county of Devon will continue to advance during the coming year as steadily as in the past, and that the work of extending the knowledge of apiculture may proceed on the firm basis of science and humanity. They also offer their best thanks to Mr. G. M. Ford and Captain Gilbert, R.N., for much kind help.

The Treasurer (the Rev. J. Dickinson) reported that the total income for the past year had amounted to 118*l.* 4*s.* 1*d.*, and the disbursements to 81*l.* 6*s.* 8*d.*, leaving a balance in hand of 36*l.* 17*s.* 5*d.*

The Earl of Devon said that he rose with a great deal of pleasure to move, 'That the report and balance-sheet for the past year be adopted, and that, together with the rules of the Association, they be printed and circulated among the members and others interested in bee-keeping.' His lordship said that he did so not that he knew much about bee-culture, but simply because he believed that the work the Society had in hand might be cultivated with

very considerable benefit to the labouring classes of the country, and that it would also tend to promote the dvancement of science. Upon those grounds, although himself not very competent to take much of an active part in bee-culture, he rejoiced to propose the adoption of the report. The report had probably reached most of those present, and he thought it would be clearly seen from it, coupled with the clear statement just submitted by the Treasurer, that this institution, starting from a small beginning, had ultimately, probably through good management, reached very considerable development and eminence.

The Mayor seconded the adoption of the report, which was carried unanimously.

The President, the Council, and the honorary secretaries were re-elected for the ensuing year.

On the motion of Mr. Griffin, seconded by Mr. Thacker, it was resolved, 'That the sphere of usefulness of the Association having so largely increased, the Council consider it desirable to recommend to the members the appointment of an honorary expert, and that Captain H. P. Gilbert, R.N., be chosen to fill the office.' Captain Gilbert was then formally elected, and was appointed an *ex-officio* member of the Council.

The Rev. Herbert R. Peel, Honorary Secretary of the British Bee-keepers' Association, and editor of the *Bee Journal*, then read the following paper 'On the best means of Instructing Cottagers in the art of Bee-keeping.'

If I had read the report of a lecture delivered by Mr. Griffin, your senior honorary secretary, at the Plymouth Fat Cattle Show, on the 13th December, before I accepted the invitation which he gave me to attend this meeting, I do not think that I should have had the boldness to come. In that lecture Mr. Griffin stated that an Apiarian Society was at work in Devonshire so long ago as the year 1792, with Mr. J. Isaac as its secretary, and that this was, without doubt, the first society of the kind started in the known world. Well, I thought when I read a report of Mr. Griffin's lecture in the January *Bee Journal*, What is the use of my going down to Devonshire to give advice as to instructing cottagers in bee-keeping? Every cottager in Devonshire must be thoroughly instructed in bee-keeping. Every possible means of instruction must have been tried in a county where a Bee-keepers' Society was in existence ninety years ago. I pictured to myself some very elderly gentleman seizing me by the button-hole at the conclusion of my paper, and saying, as of old, 'You are but of yesterday and know nothing. I could have told you all you have been telling us ninety years ago. Bless your heart! there are no bee-keepers now like there used to be then. I don't think the honey tastes nearly so nice as it did when I was young; and as for the wax, I can't see nearly as well with two wax-candles now as I could with one then?'

I took courage, however, when I reflected that this Devonshire Association of 1792 could hardly have gone on from that time to the present without solution of continuity, and that the Association, whose members I had undertaken to address, only dated from 1875 or thereabouts. I felt, too, that, however much nonagenarian bee-keepers might despise the advice I had to offer, I owed a debt of gratitude to Mr. Griffin, not only for his exertions here, but also for so often attending our metropolitan shows in the capacity of a judge, as well as to his brother secretary for touring in Cornwall, and trying to convince the Cornish men that a deposit of pilchards is not absolutely indispensable to the proper hiving of a swarm of bees. I felt also that this debt could be best repaid by my coming to Exeter upon their invitation, and reading this paper upon the best means of instructing cottagers in the art of bee-keeping. A most commonplace subject, most hackneyed, and scarcely admitting of anything bearing the charm of novelty, but one by no means exhausted yet, and affording ample scope for discussion. The Rev. W. E. Burkitt, the honorary secretary of the Wiltshire Bee-keepers' Association, has promised to read a paper bearing this same title at our next Quarterly Meeting in London, on the 24th of January. I have no doubt it will be found that in the treatment of this subject, hon. secretaries as well as doctors differ very considerably, that there will be a marked difference both in the diagnosis of the case as well as in the remedies proposed to be applied.

So far, indeed, are we from having exhausted this subject, that we have not yet arrived at a satisfactory solution of the question, *Who is a cottager?* A little while ago, there was a good deal of difficulty in the definition of a *bonâ-fide traveller*. At the meetings of most Associations, there is the same contention over the *bonâ-fide* cottager. What is a cottager?—A man who lives in a cottage. Oh, no, this will never do!—Visions of Acacia Cottage or Laburnum Cottage are called up rented at 5*l.* or 10*l.* a-week, with stabling for two or more horses. A cottager is a man in receipt of weekly wages;—but some receive 3*l.* or 4*l.* as weekly wages who cannot be classed as cottagers; or a man who works with his own hands;—but so do artists, sculptors, *et hoc genus omne*. We all know very well whom we mean when we speak of cottagers, but it is very difficult to define exactly who shall and who shall not be placed in this category. Certainly, when we see some of the successful competitors in cottagers' classes—(no entry fee)—advancing to receive their prizes, we feel a little staggered at their prosperous and well-to-do appearance, and feel a sort of national pride in the conviction, that the British cottager is a most flourishing member of the community, and quite a different stamp of man from the cottager of France, Italy, and Germany.

But we will charitably suppose that all these prosperous gentlemen who come up to receive prizes are *bonâ-fide* cottagers; that on such occasions as these they contrive to look their best, and that a cottager's capacity for smartening himself up is 'just as great as any other man's.' Still we do not want to see these same prize-winners come up every year; we want to see a greater competition in the cottagers' classes and we want to reach that great majority of cottagers, who do not keep bees at all, but who might, we think, make a considerable addition to their incomes if they could only be taught bee-keeping on humane and intelligent principles. What are the means generally employed for this purpose, and which are the *best* of these means? This, I think, is the question before us.

There is, first of all, what I think we may call the *voluntary* principle. I mean the case where a cottager lives in the neighbourhood of some experienced bee-keeper, who is unselfish enough not to hide his light under a bushel, but to impart freely to others that knowledge which he possesses himself.

Most of the well-known recipients of prizes in cottagers' classes, whose names and faces are so familiar at our metropolitan shows, belong to the category and have had this advantage. Some good amateur has lived in their neighbourhood, and they have profited by his instruction; but these fortuitous sources of knowledge are too isolated and partial ever to teach bee-keeping nationally. Just as the voluntary principle was insufficient by itself to provide a national education for the people of England and had to be supplemented by Government aid, so in bee-keeping something more systematic was required to supplement the efforts of well-intentioned volunteers if instruction was to be brought to the home of every cottager in Great Britain who wished to try his hand at bee-keeping. This *something* proved to be the County Bee-keepers' Association.

I well remember the dismay with which, when I became Hon. Sec. of the British Bee-keepers' Association, I regarded amongst its proposed objects the words 'for

the advancement of the interests of the industrious classes of Great Britain, and especially of the agricultural labourer. How, I thought, is this object ever to be reached by an Association whose head-quarters are in London? But on consulting the early numbers of the *Bee Journal* I found a suggestion made by a bee-keeper well known in the west of England, — Mr. Charles Tite of Yeovil, which seemed to solve the difficulty in a moment. Here was Great Britain, to say nothing of Ireland, all before one like the bundle of sticks which could not be broken as long as the bundle remained intact and the sticks unseparated. Undo the bundle, separate the sticks, and you can soon break them one by one. So with Great Britain, divide it into its counties; take each county separately; form a Bee-keepers' Association in each, and the task will have a chance, at all events, of being accomplished. Let that spirit of generous rivalry which provokes unto good works be spread abroad in each county; let the chief residents in each county be induced to take an interest in bee-keeping as a means of bettering the condition of its cottagers, and the whole of Great Britain will soon be leavened with the knowledge of the art, which we think it so important that cottagers should learn. What has been the result of Mr. Tite's suggestion? There are now thirty counties in England and Wales in which County Bee-keepers' Associations are in active operation, not to speak of the Caledonian and other Scottish Societies, or of the Irish Bee-keepers' Association. And whenever a County Association is started, as a natural consequence there follows a county show of bee-hives and all appliances for bee-keeping held either independently or in connexion with the exhibition of some Horticultural or Agricultural Society. This is of course a very good means of showing what can be done in the way of bee-keeping and making bee-keeping popular. But how far does it touch the cottager? The classes 'for cottagers only' are of course an attraction to him if he is already a bee-keeper, and show him that some encouragement is offered to those who take pains with their bees. An old bee-keeper once said to me, 'I used to keep bees once when I lived in the north, but when I came to live here, near London, there were no shows and no encouragement given, and so I gave them up.' But the cottager who does not keep bees, and whom you want to keep them, how does a show affect him? Why, as he never, as a general rule, buys a catalogue and is therefore entirely ignorant what the classes are for, or what the competition means, it has very little meaning for him. 'It be all main pretty,' is generally the remark with which he quits the Exhibition Tent. He regards the articles exhibited as placed there merely to please the eye. In the way of instruction they have no meaning for him.

The same may be said of lectures given in school-rooms, illustrated by pictures and diagrams, and with questioning invited at the close of the lectures. They are very useful means of instruction, but they do not often touch the *bonâ-fide* cottager. The *bonâ-fide* cottager is generally on these occasions conspicuous by his absence. But if he is brought to this well-spring of knowledge, it is a very great chance if you can make him drink of it. The presence of what he calls *The* Quality overwhelms him. He has a back seat, and perhaps only hears imperfectly, or the technical words used by the lecturer often puzzle him. 'What with their unicorn hives and their contractors I'm a'most fairly dazed,' said an old cottager to me as he emerged from a lecture-room. I presumed that he referred to unicomb hives and extractors. The questioning or catechising at the close of a lecture might no doubt be very useful to a cottager if he were not too shy to ask questions before 'the quality.' As it is he has generally just screwed up his courage to venture some modest inquiry when the chairman says, 'Well, ladies and gentlemen, if no one has any more questions to ask I think we may pass a vote of thanks to the lecturer and go home.' Lectures may be a means of instructing the cottager in bee-keeping, but they are certainly not the *best* means.

Books such as *Modern Bee-keeping*, and publications such as the *Bee Journal* (if I may be allowed to say so without a suspicion that I want to advertise), are of course an obvious means of communicating knowledge; but, in spite of our national system of education, it is not every *bonâ-fide* cottager who can read, and even to those who can, the question, 'Understandest thou what thou readest?' may be addressed without much apology. It certainly requires a very clever person to learn any art or accomplishment out of a book without any oral teaching from a master. We all know the result of attempting to learn a foreign language out of a book. And it is just the same with a cottager who tries to learn bee-keeping from a book. He wants a master to solve his difficulties; to explain what this or that word means. 'How can I except some man guide me?' is his natural answer to the question, 'Understandest thou what thou readest?'

It seems to me, then, that even a County Association, with all its organization, with its annual show of bees, hives, and honey; its lectures and diagrams; its circulation of books and *Bee Journals*, fails (if it stops short at these) to reach the cottager whom we are so anxious to instruct. Something is still wanting, and I will tell you what in my opinion that something is.

When the British Bee-keepers' Association recovered from the state of collapse into which it had fallen at the commencement of the year 1878, the first attention of its Committee was devoted to providing a Bee-tent (in which spectators could see the manner in which bees are handled and '*driven*'), and sending it about the country in charge of an experienced bee-keeper who could give simple explanations to the public of the processes which he was carrying on, and the object for which these were designed. The original idea being, of course, to teach cottagers to drive their bees from full hives into empty ones when they wished to take their honey instead of suffocating them with brimstone. As time went on, the man in charge of the Bee-tent was dignified with the title of 'expert,' a term which had been almost exclusively appropriated by the late M. Chabot and other gentlemen who appeared at trials where handwriting was called in question. It occurred to me, when I awoke to the importance of the County Associations as suggested by Mr. Tite, that the expert might be still further utilised at times of the year when the Bee-tent was not in use, and that he might prove the solution of the problem, 'How you can best instruct cottagers in the art of bee-keeping.' The expert was generally a man taken from the cottager class itself, or from a class a little above that of the cottager, not too far above, at all events, for the cottager to mistrust or to stand in awe of him. Why not send the expert round in the spring of each year? and in the autumn also if possible, to the home of every cottager in a county who will join its Association, and commission him to give that oral instruction without which books are so valueless; to be the guide through whose help the cottager might understand what he read? In starting the Hertfordshire County Association, we made these annual visits of an expert to the homes of the members a special feature of our programme; and the result has been so satisfactory that I am convinced that no County Association is perfect unless it has an expert of its own, who visits its members regularly (I mean at fixed periods, such as spring and autumn, March and September), and gives them all the *viva voce* instruction possible. I will go even further than this, and say that a County Association without an expert seems to me like a ship,—I suppose I must not say without a steersman (for the secretary is the recognised steersman), but without a helm which the steersman may direct.

The duties of an expert may be very shortly defined. He is to be the connecting link between the secretary and the cottager. He is to visit the latter at his own home, to give him all the instruction in bee-keeping that he possibly can, both in theory and practice, and to be generally his guide, philosopher, and friend.

But when we come to consider what manner of man the expert ought to be in order to carry out these duties faithfully, it does not seem quite so easy to get the right man in the right place.

1. He should be a native of the county in which he is to act as expert, if only for this reason that he should speak to the cottagers in a tongue which they can understand. I do not mean merely in homely and simple language, but in the dialect and in the provincialisms to which the people are accustomed. You might have the best expert in the world born and bred in the north of England, but if you were to send him round to the Devonshire folk he would be unto him to whom he spake as a barbarian, and he that spake would be a barbarian unto him.

2. He must, of course, be thoroughly acquainted with every detail of bee-keeping, and have his heart in his work. If you can find your native you may very easily test his intelligence and capacity. We have this last year instituted examinations in London which will, as a rule, be coincident with our annual metropolitan show, at which those who wish to become experts can compete for certificates of first, second, and third class. If a county Association will send up to us any man, whom the committee thinks would make a good expert, we will, at all events, analyse him for that committee ; we will test his intelligence, and let those who sent him know how he stands as regards his fellow-candidates. If you want an expert and the right native is not forthcoming, here is a market of experts from which you can take your choice. A large county will as time goes on very likely need two or three experts. These examinations will ensure that the supply shall be in advance of the demand.

3. An expert must be above suspicion as to his honesty and trustworthiness in money matters. In Hertfordshire we had no hesitation in intrusting, first, Mr. S. J. Baldwin, and then Mr. Thomas Blow (our permanent expert) with a subscription receipt-book. The Herts Association sends its expert to all its members (cottagers and others). The effect has been even beyond what we could have hoped for. In a very short space of time (the Association was not fairly launched until the spring of 1880) the number of members has reached 400, and the subscription list, I am told, has this last year exceeded 100*l*. No one has such facilities for collecting subscriptions as the expert; one man introduces him to another, and at the same time suggests that his friend should join the Association; and as the expert traverses every part of a county, and the process is repeated wherever he goes, the fruits of his labour in a financial point of view soon become discernible. Much as we are all indebted to Mr. Godfrey, the honorary secretary of the Lincolnshire Association, for his most interesting and also most instructive history of that Association, I cannot help feeling that the want of increase of members of which he complains is due to the fact that there is no appointed expert in Lincolnshire visiting the bee-keepers in every part of the county, forming a link between them, and during the period of his visits adding day by day fresh members to the Association. Of course no competitive examination can guarantee a man's honesty. You must satisfy yourselves upon that point from a knowledge of his character, and by doing that which is only fair to every person placed in a responsible position of trust, taking nothing for granted, examining all accounts strictly, and keeping a sharp look-out upon him yourselves.

4. An expert must have certain social qualities also, he must not be a conceited man, whose only aim it is to show off his own knowledge and let others see his immeasurable superiority. He must not be an impatient, fussy man, who is too busy to answer questions which seem to him trivial and unimportant. He must like chatting with humble folks, and not be above accepting an invitation to come in in the evening and smoke a quiet pipe, and have a talk with a little company of his host's neighbour. If you will read Mr. Godfrey's paper on the history of the Lincolnshire Association you will learn how much can be originated by a few friends discussing an evening pipe in a snuggery. An expert should always be a *genial* man.

Let me add one more qualification which an expert may possess with advantage, though, of course, it cannot be considered as an absolute necessity. It is a very good thing if he knows how to avail himself of the much-abused bicycle. An expert who is a bicyclist can get through his rounds in half the time that one who is obliged to trust the wheels of another kind would take, and is far more independent—not to speak of his saving his Association very much under the head of travelling expenses. I myself see no objection to an expert being also a manufacturer of hives and appliances.

Now, when we come to reckon up the qualifications which an expert should possess, in addition to his being born in the county, viz., intelligence, thorough knowledge of his subject, honesty, trustworthiness, modesty, and geniality, you may be inclined to say, 'There is no such man; it is impossible.' But I can assure you to the contrary. I have seen such men in the flesh, have spoken with them, and shaken them by the hand. You have, no doubt, many such men in Devonshire, but until they are discovered and brought to light by means of a County Association, they only fulfil the words of the elegist in the County Churchyard—

> 'Full many a gem of purest ray serene
> The dark unfathom'd caves of ocean bear;
> Full many a flower is born to blush unseen,
> And waste its sweetness on the desert air.'

One word more. Most Associations are in the position of the rector who wants a curate for his parish. I want a man who combines the energy of St. Peter with the fervour of St. Paul and the charity of St. John for 50*l*. per annum. You would like to engage these desirable experts, but you find a difficulty in finding the funds to pay them. To this I would reply. First, that an expert armed with a receipt-book pays for himself, and more than himself, just as a Bee-tent does. The Association is really the richer for employing him. Secondly, that I believe that there is no limit to the liberality and generosity of Englishmen. Once convince the leading persons in your county that it is a good thing that cottagers should be instructed in bee-keeping; that they may add considerably to their incomes by so doing; may clothe and school their children; and pay their doctor's bill. Then persuade them, as I have been endeavouring to persuade you, that the best means of instructing cottagers is to send an expert, such as I have described, to their homes to teach them bee-keeping by word of mouth, and I have no fear whatever that the money will not be forthcoming. Landowners and employers of labour will always come forward to help an Association which they see benefiting those in whom they themselves take an interest. You, at all events, will have learnt from this paper what I consider the best means of instructing cottagers in bee-keeping, viz. the employment of a county expert. Now I have had my say, I shall be very glad to hear my paper discussed, and am quite ready to be instructed myself if anyone will point out to me 'a more excellent way.'

On the motion of Mr. Griffin, seconded by the Rev. J. G. Dangar, a hearty vote of thanks was accorded to Mr. Peel for his able paper; and that gentleman, in response, said that the paper would be printed in the *Bee Journal*

in full, and he should be pleased to supply the members of the Association with copies.

Votes of thanks to the Mayor for the use of the Guildhall, and to the President for his conduct in the chair, brought the meeting to a termination.

DORSETSHIRE BEE-KEEPERS' ASSOCIATION.

The Annual Meeting of this Association was held at Alington Hall, Dorchester, on Wednesday, Jan. 10. Mr. J. Floyer, M.P., presided, and among those present were the Rev. H. Everett, Rev. G. H. Wynne, Rev. L. Stanton, Rev. H. R. Peel, Rev. J. L. Sainsbury, Messrs. E. Burnett, H. Durden (Mayor of Dorchester), W. Toms, W. West, and W. H. Dunman, jun. (Hon. Sec.)

The Chairman, having briefly opened the meeting, called upon the Secretary, Mr. Dunman, to read the report for the past year.

The Hon. Secretary read the report, which stated that the progress of the Association had been most gratifying in every department. The Committee had been enabled during the year, through the liberality of the principal residents in the county, to procure a tent suitable for conducting manipulations at the various flower-shows held in the district. The tent had already been of very great service, and had enabled the Committee to send their expert to a number of towns and villages, among others Cerne Abbas, Puddletown, Whitchurch Canonicorum, Portland, and Canford at the invitation of Lord Wimborne. Referring to the Annual Show, which was held at Bournemouth last year, the report stated that the Committee were anxious to aid in forming an Association for Hants. The visit to Blandford was most encouraging. There was a good display of honey, hives, &c., prizes for which were given by the local Horticultural Society. The manipulations were most attractive, and 4*l.* 6*s.* was taken for admission to the tent. At the various shows, lectures were given and great assistance rendered by the Rev. L. Stanton (Combe Keynes), Messrs. J. F. Hussey (Dorchester), F. Reynolds (Portland), W. Fletcher (Wimborne), J. Alsford (Blandford), and T. Stickland (Puddletown). The increase of members is most steady and satisfactory. We have now 124, as against 96 last year; 45 being new ones: death and removals having lessened last year's list by 17. The attempt to establish depôts last spring proved a failure, in consequence of the impossibility of getting a supply of bee-keeping goods. In order to avoid this difficulty in the future, the Committee have taken steps to set the work in order earlier in the year, and have already secured the services of tradesmen at Dorchester, Blandford, and Wimborne, who are willing to co-operate with them in this matter. The Honorary Secretary had disposed of nearly 7 cwts. of honey for himself and for members of the Association during the past season, and he will be glad to hear from others who have honey to sell, so that he may put them in communication with purchasers. The report also stated that arrangements were in progress for the Rev. W. E. Burkitt, of Buttermere, Wilts, to take a lecturing tour through the county after Easter, and that the Association had distributed a large quantity of bee literature in the county, and hoped to continue that part of their work with renewed vigour. The balance-sheet for the past year, which was next read by the Secretary, showed that the total receipts had been 112*l.* 4*s.* 5½*d.*; including subscriptions, 61*l.* 4*s.*; donations towards new bee tent, 9*l.* 12*s.*; entrance fees, 25*l.* 13*s.* 5*d.*, &c. The balance in hand was 15*l.* 9*s.* 10*d.*, and the principal items of expenditure were as follows:—Prizes given at Bournemouth and Portland, 20*l.* 2*s.* 6*d.*; expenses of bee tent at various places, 18*l.* 9*s.* 6½*d.*; nine hives given to cottagers, 4*l.* 10*s.*; bee tent, 20*l.*; printing, advertising, and stationery, 13*l.* 2*s.* 1*d.*; postage, 5*l.* 16*s.* 7*d.*

The report was unanimously adopted.

Mr. Arthur Lock proposed the re-election of Lord Shaftesbury as President of the Association for the ensuing year.

The Rev. L. Stanton proposed that the following gentlemen be the Vice-presidents for the ensuing year:—Rev. Canon Nash, Rev. F. T. Rooke, Rev. G. H. Wynne, Rev. Hart Dyke, Mr. E. L. Kindersley, Mr. A. Bankes, Captain Downes, Mr. W. H. Evans, and Major Mount Batten.

The Rev. G. H. Wynne proposed that the following gentlemen constitute the Acting Committee for the ensuing year:—Rev. H. Everett, Mr. M. C. Weston, Mr. E. Burnett, Mr. T. Coombs, Mr. W. Fletcher, Mr. W. R. Vatcher, Mr. T. Stickland, Rev. N. W. Grisley, Mr. Best, Mr. J. Trevor Davies, Rev. L. Stanton, Mr. J. T. Hussey, Mr. C. Tite, Mr. Dominy, Mr. Reynolds, and Rev. G. H. Wynne.

Mr. Burnett, in proposing the re-election of Mr. Dunman as Secretary and Treasurer, paid a high tribute to the ability and industry of that gentleman.

Mr. Dunman, in acknowledging the compliment, said his whole heart and soul had been in the work of the Association, and he was delighted to see that it had prospered and was prospering. The number of members was increasing very steadily, but he would like to see it grow faster. He was glad it had been decided at the last meeting of the Committee that every cottager should be admitted at an entrance-fee of 1*s.*, and hoped that class would join in larger numbers than they had hitherto done. Referring to the importance of establishing depôts in the county where bee-furniture could be obtained, he explained that the Association had been obliged to postpone their establishment till this year, but that four tradesmen—at Dorchester, Sherborne, Blandford, and Wimborne—had agreed to form such depôts, and he hoped people would be able to get their things from them without sending to London. He was proud to say that among County Associations they ranked fourth as regarded the total sum subscribed, and he thought there must be very nearly thirty associations in the country. A most successful honey fair had been held in Lincolnshire, and he would propose to the Committee when the time came that the Dorset Association should hold a honey show this year, as he did not know a better county for the purpose.

The Rev. H. R. Peel, Secretary of the Central Association, in response to the call of the Chairman, then delivered a very practical address, in the course of which he recommended that experts should be sent round to examine all the hives of the cottagers in the spring, and also in the autumn if possible. The experts should tell the cottagers what they wanted, and what preparation they should make for the future. The expert should be one of their own class (the cottagers'), a resident in the county, and a man of intelligence, who should pass an examination in London qualifying him for the office. An expert should be above suspicion, should be a genial man, and should be authorised to receive subscriptions towards the Association.

A vote of thanks to the Chairman having been proposed, the Chairman, in replying, expressed the indebtedness of the meeting to Mr. Peel for his interesting description of what such an Association ought to be.

The meeting then terminated.

KENT BEE-KEEPERS' ASSOCIATION.

The Annual General Meeting of the Association was held by the kind courtesy of the Royal Society for the Prevention of Cruelty to Animals, in the Board Room of the Society, 105 Jermyn Street, St. James's, on Friday, the 19th January, at 4 o'clock in the afternoon. The arrangement for holding the annual meeting in London rather than in the county was decided upon at the time of determining the new rules of the Association, the ex-

perience of the past having shown the great difficulty of securing the attendance of even a small number of members at a country centre. The result on this, the first occasion, fully justified the step taken, the meeting not only being fairly well attended, but also thoroughly representative as to districts and classes of members.

Mr. Duncan Stewart, responding to the call of the meeting, took the chair, and after alluding with regret to the absence, through temporary ill-health, of the Rev. Andrew Welch, vicar of St. Mary Cray, and chairman of the Council during the past year, called attention to the advance which had been made during the past year by the Association.

He also directed attention to the necessity for every one interested in its success to use his individual influence to induce others to become members. The patent fact was presented of the enormous importations of foreign honey and wax into the country, whilst we, without being handicapped in any way, were in a position to produce a practically unlimited quantity ourselves.

The Secretary was called upon to read the report of the Council upon the work of the past year. This adverted to the fact that a very satisfactory increase in the number of members had taken place, the number on the list at the present time being 210, while the subscriptions had advanced from 56*l.* in 1881 to 73*l.* in 1882. Included in this latter amount it was stated that Earl Stanhope had contributed 5*l.* becoming thereby a life member.

The bee-tent of the Association was in frequent use during the past season, and a profit balance had been carried to the credit of income of upwards of 16*l.*

The Association sustains a loss by the death of its deeply respected patron, the Archbishop of Canterbury. The council proposes that the plan of establishing an experts' tour amongst the apiaries of members, as practised in Hertfordshire, be added to the advantages enjoyed by members; and that a proportion of the income of the Association be applied to the cost of providing lectures or entertainments of an appropriate kind. Attention is drawn to the fact that a committee appointed by the council has during the year established a standard county hive for general use, at the price of 10*s.* each to members. The main feature of the report was that in which the question of remunerating the secretary was dealt with. The proposal which was made last year to set apart the sum of 50*l.* for the purpose was found unattainable, and the Association now virtually stakes its existence upon the step which it has resolved to take in guaranteeing this sum to the secretary for the current year. The council appeals to the members to exert themselves to support the executive by all means in their power, and avert the possibility of disaster. Allusion is made to the benefit which has been secured to the Association by the kindly attitude of the West Kent Horticultural Society during the past two seasons; and a note of warning is struck, that in its future relations a rather more practical aspect may be cast upon them. The annual exhibition for the ensuing year will be held in the eastern division of the county, probably at Ashford; but in consequence of the increased expenses falling upon the funds of the Association before alluded to, greater efforts will be made to raise a special fund to defray the cost of the exhibition.

The thanks of the Association were invited to be given to the generous donors to the Bee-tent Fund and the general fund, as also to kind friends at Ashford for providing a prize fund for the show held there. The report also embraced a brief extract from Mr. Geo. Allen's beediary, in which some notable facts were stated, and it is intended to select one similar instance for publication in each exceeding year to mark the progress made.

The reception of the report and balance-sheet was upon the motion of the Chairman duly seconded, and unanimously agreed upon.

The customary votes of thanks were given to the retiring officers, council, divisional committees, and local honorary secretaries for their kind services during the past year. The warm thanks of the Association were given to the Royal Society for the Prevention of Cruelty to Animals for the gratuitous use of their board-room. The election of president, vice-presidents, and officers for the ensuing year, as well as the respective committees and council, was carried out, and sundry alterations of a minor kind in the rules were agreed upon.

A drawing on behalf of cottagers, in accordance with Rule 11 of the Association, for two hives, brought the business to a close. The fortunate winners were Alfred Walker, agricultural labourer, and Thos. Packman, artisan.

During the course of the proceedings the Rev. F. T. Scott read a letter which he had received from the Hon. Col. Colville, announcing that his Royal Highness the Duke of Edinburgh had acceded to the request made to him to become the patron of the Association; this was greeted with applause.

A hearty vote of thanks to Mr. Stewart for his courteous and businesslike conduct in the chair concluded the meeting.

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.

The Lincolnshire Bee-keepers' Association have received an inquiry from the Lincolnshire Agricultural Society as to their willingness to manage a bee display at their forthcoming show to be held at Gainsborough in July next, similar to that held at the Society's Show at Sleaford last year. To this inquiry a reply has been given in the affirmative; and a prize schedule has been submitted for the consideration of the Council. As Gainsborough is a district hitherto unexplored, it is to be hoped that the result of the show may prove a benefit to the locality.

LEICESTERSHIRE BEE-KEEPERS' ASSOCIATION.

The general meeting of this Association was held on Saturday, January 20, in the Mayor's Parlour, Old Town Hall, Leicester. There was a good attendance of members. The Rev. A. M. Rendell, who generally acts as chairman at the committee meetings, was voted to the chair, and at once commenced by reading the report, which was adopted. The committee was re-elected, and the names of Rev. T. W. Goddard and Mr. George Bryan were added to the list. The secretary, treasurer, and auditor were also re-elected. Captain W. B. Leeds then offered his services to the Association as lecturer on bee-keeping. On being put to the meeting his offer was unanimously accepted.

Mr. W. S. Pridmore proposed the purchase of a bee-tent; but after some discussion the matter was left for further consideration at next committee meeting.

A vote of thanks to Mr. and Mrs. Ball for their valuable services was now proposed by Mr. J. H. Smith, and seconded by Captain W. B. Leeds. The suggestion that the thanks should be accompanied by a substantial present led to a lively discussion, which eventually resulted in an unanimous agreement that the secretary and his wife be presented with three guineas. To prevent this being too great a strain on the funds many members at once doubled their subscriptions.

A vote of thanks to the Mayor having been put and carried the proceedings terminated.

In the course of the meeting it transpired that the next Annual Show will take place at Melton, on July 25 and 26, at the same time as the Leicestershire Agricultural Society's Show.

HAMPSHIRE AND ISLE OF WIGHT BEE-KEEPERS' ASSOCIATION.

This Association, only recently formed, has made considerable progress under the able guidance of E. H. Bellairs, Esq., the hon. secretary. A large number of members have been enrolled, and the funds in hand amount to about 70*l*. A circular of the most practical character has recently been issued, from which we learn that a committee will shortly be formed from members residing in the chief centres of the county. After the election of the committee it is proposed that each member of the committee shall canvass his own neighbourhood.

It is proposed to form a special fund for the purchase of a bee-tent and the foundation of a library. We extract the following from the circular which has been recently issued: 'It is scarcely necessary to demonstrate the need of such a Society; but a few figures may suffice to show that bee-keeping ought to be a national industry. There are no statistics now taken of our honey imports, as honey was removed from the registered Customs List 1871, for what reason is not apparent; but in 1870 we imported (chiefly from Portugal, France, and Chili) 16,687 cwts. At that time the United States production was insignificant, but since then their exports to this country have grown to an enormous figure. This may be inferred from the growth of bee-keeping as an industry in that country, for whilst in 1870 it was computed that barely a million dollars were sunk as capital in bee-keeping; in 1879 the profits alone were estimated at sixteen million dollars.'

ASSOCIATION FOR BUCKINGHAMSHIRE.

It has been decided to form an Association for this county. Hitherto there has only been one Association for the counties of Berks and Bucks. The area of both counties has, however, been found too large for one Society to work effectively. The old Association will, of course, lose a few members by this change; but we trust some ardent bee-keepers residing in the more distant parts of Berkshire, viz. at Newbury, Wallingford, Wantage, Faringdon, &c., will come forward and assist the present executive to make the Berkshire Association thoroughly representative of every part of the county. The honorary secretary of the Buckinghamshire Association is Mr. J. B. Graves, Stony Stratford.

COUNTY CORK BEE-KEEPERS' ASSOCIATION.

At the Cork Industrial Exhibition, to be held in Cork in 1883, the County Cork Bee-keepers' Association purpose holding a bee-show with lectures. This will prove an excellent opportunity for spreading information on modern bee-keeping in that part of Ireland. It will be a good opening for the exhibition of hives, and there will be a demand for them as no one has yet set up hive-making in the south. Hives, &c., entered for the exhibition would be made eligible for competition at the Bee Show, which will be held at the opening. Mr. Crosbie Smith, honorary secretary of the County Cork Bee-keepers' Association, Passage West, Cork, will be happy to advise any intending exhibitors. For application for space, see advertisement.

STRENGTH OF BEES.—According to M. Pateau, who has recently made ingenious experiments regarding the strength of insects, the smallest of these animals are proportionally the strongest. A cockchafer can pull 21 times more, proportionally, than a horse, while a bee pulls 30 times more. The animals were attached to a cord passing over a pulley to a weighted scale. The horse draws six-sevenths of its weight, the cockchafer 14 times its weight, and the bee 20 times its weight.

BEE-KEEPERS AT HOME.

No. II.—MR. C. N. ABBOTT, AT FAIRLAWN, SOUTHALL.

Charles Nash Abbott, late editor of the *British Bee Journal*, and head of the firm trading under the name of Abbott Brothers, and who has fo many years occupied a conspicuous position in the apicultural world, was born at Hanwell on the 5th of October, 1830, and is now in his fifty-third year. His father was a builder in a large way of business,—a man of high repute and sterling worth; of his mother Mr. Abbott ever speaks in terms of the tenderest filial affection.

Early in life, while still a lad, an event occurred which he has never forgotten. At 4 p.m., one summer Sunday afternoon, an errant swarm of bees alighted on a tree in his father's garden, and there they hung until the evening. They were hived in a flat-topped skep, having a small window at the back, and were to the boy a continual source of wonderment and delight, and not unfrequently a source of punishment. Instructed by the bee-man of the village, the young apiarist soon learned the art of feeding his pets on sugar and beer. Many are the pleasant memories which cling to his mind respecting these bees, especially in the ensuing summer when holidays were begged from school because the bees were going to swarm, which they eventually did; and the one stock multiplied to three. The 'taking up' of one of them in the ensuing autumn is a dark remembrance; but the knowledge of any more excellent way had not found its way to his village; there was then no *Journal* or other available means of enlightenment. In the course of time, however, straw supers found their way to Hanwell, and hopes of partaking of the honey and saving the lives of the bees flitted before his youthful mind. But alas! these hopes were not to be fulfilled, for when the young bee-keeper arrived at home to spend his Christmas holidays, he found, to his great grief, that all his stocks had perished!

Two years more at school, five years' apprenticeship, and fourteen years in business, with no possibility of keeping bees, and with but very occasional glimpses of them, bring us to the year 1865, when the father of Mr. Abbott died. This event released him from business necessities, and permitted a return to his favourite hobby; for we soon find him a resident once more in Hanwell, and the happy owner of two skeps of bees. These, with attention to a garden of a quarter of an acre, and the building of a few cottages, occupied his mind for some time. His bees throve wonderfully; they multiplied in two years to fourteen, and the old stocks yielded, on an average, ten pounds of honey. But supinely lying under the shade of the 'wide-spreading beech-tree,' listening to the musical humming of bees, was not sufficient to satisfy the active mind of Mr. Abbott; and an opportunity of more stirring employment having presented itself, we find him an officer at the Central London District School at Hanwell; and here in friendly intercourse with Dr. Coster, the medical officer,

and a bee-keeper of celebrity, Mr. Abbott acquired his first real lessons in advanced bee-culture,—real lessons almost daily repeated and enforced by practical demonstrations. The learned Doctor was an ardent disciple of the moveable-comb system; and it needed but little argument on his part, enforced, as were all his teachings, by reference to the bees themselves, to induce Mr. Abbott to become a devoted adherent to his advanced principles. Mr. Abbott was a willing learner under a most patient and willing master, one who would take nothing upon trust, but who insisted on verifying the experiences recorded by the greatest men of the day; and thus our apiarist had the immense advantage of participating in and witnessing the most minute experiments on all branches of the subject at no greater cost than a few stings. Innumerable, also, were the experiments made in hive-construction to test the suitability of the Woodbury, the Langstroth, and the Quinby hives for the English climate. Frame-hives in those days were very expensive, a Woodbury complete costing over five pounds; and here Mr. Abbott's knowledge of carpentry was found most serviceable, for they were all made at home (*i.e.*, at the Doctor's), and their cost being light, the experiments were freely indulged in. By these means, and with the advantages which eminent medical knowledge confers in such an investigation, the terrible winter disease, dysentery, was carefully studied, and the foundation laid of the knowledge which has enabled Mr. Abbott to practically set that disease at defiance. It is an act of justice to state that Mr. Abbott having learned a better system, in this instance of bee-culture, has ever taken the greatest delight in freely communicating the information he had gained to others; and having 'proved all things,' he soon became a teacher, the local newspaper (now the *Middlesex County Times*) having opened its columns to his pen, and Mr. Abbott became a ready source of information on bee culture to all who sought it.

(To be continued.)

Foreign.

ITALY.

The reports received at the Central Association upon the results obtained by bee-keepers last year show that, although the yield of honey was not quite satisfactory in every part of the country, the quantity collected, taken as a whole, was considered quite up to the average.

The rooms of the Association, situated at No. 4 Piazza Cavour, Milan, will be open every Wednesday and Saturday from 1 to 3 o'clock p.m.

The Central Association has decided to offer all its publications at a specially reduced price during four weeks. This plan of facilitating its members to obtain bee literature at low prices is generally adopted at this time of the year.

With the January number, the *Apicoltore* enters upon its sixteenth year of existence. Among its present subscribers the King of Italy figures for ten copies, and the Ministry for Agriculture and Commerce for thirty. The same journal has published the first portion of a report upon the Twenty-seventh Congress of German and Austrian Bee-keepers, held at Neustadt, near Vienna, on the 11th, 12th, and 13th of September last.

Italian bee-keepers are at the present time much concerned respecting an unexpected difficulty in the shape of a vine-grower having given formal notice to a neighbouring bee-keeper to remove his apiary consisting of about 400 hives, on account of alleged damage being caused by the bees to his grapes. The assistance of the Association has been solicited, and the result is awaited with considerable interest.

HAMBURG.

An international exhibition of domestic animals, fish, &c., will be held at Hamburg in July, 1883. Bees, and appliances for their keep and culture, with their products, will be represented as one of the departments.

UNITED STATES.

Michigan Bee-keepers' Convention.—The seventeenth annual meeting of the Michigan State Bee-keepers' Association was held December 6th and 7th at Kalamazoo. There were present nearly one hundred bee-keepers. The first subject was as to which variety of bees is the best. A. J. Cook, Prof. of Entomology at the Michigan Agricultural College, would advise beginners to get Italians, the gentler the better, while the experienced apiarist would do well to get Syrians. He considers Syrians the best for rapid breeding, but more easily irritated, and very persistent in their attack, often following a bee-keeper into the house to sting him. The ringed or striped appearance of the Syrian queens enables him to distinguish them from the Italians. Dr. C. C. Miller, of Marengo, Ill., whose bees (170 colonies) stored more than 16,000 pounds of comb-honey the present year, has kept both Syrian and Cyprian queens, but can see no difference in their appearance or their conduct.

A. I. Root, editor of *Gleanings in Bee-Culture*, has Italians, Syrians, and Cyprians, and finds it impossible to distinguish them by casually looking at them; he can see a difference when handling them. The Syrians reared the largest amount of brood, built the most queen-cells, and were more irritable than the Italians, but if one understands their peculiarities, they can be handled fully as rapidly. J. J. Swartwout, Union City, Mich., said that the Syrians would go off from the combs, when shaken, 'like shot from a shovel.' They fly more rapidly, and make the entrance more surely than any other varieties of bees. They will breed when no honey is coming in, never stopping as long as there is a drop of honey remaining in the hive. James Heddon, Dowagiac, Mich., believed that there is great difference in different strains of the same variety. He also believed that a judicious cross between the brown German bee and the dark leather-coloured Italian is superior to either variety. He said that E. J. Oatman, of Dundee, Ill., had reported that his Syrians did not properly seal or cap the honey, and he was obliged to sell the honey at a loss of from two to five cents per pound.

The next question discussed was that of section-honey boxes. Prof. Cook said that several had suggested that sections would be better if they were not square, but were longer in a perpendicular than in a horizontal direction. Dr. C. C. Miller said that D. A. Jones, of Beeton, Canada, to whom they are indebted for the introduction of the Syrian bees, has had excellent success in using sections that were longer in a perpendicular direction. After the bees had commenced building combs in the sections he turned them upside down, which caused the bees to fill the sections better. Dr. E. B. Southwick, of Mendon, Mich., thought that the bees would store more honey in large than in small sections; that is, they would fill a large section nearly as quickly as a small one. James Heddon said that he used section $1\frac{3}{4}$ inches wide and $4\frac{1}{4}$ by $4\frac{1}{4}$ inches square. Such sections hold one pound of honey. He used no separators, and practised the tiering-up plan. He feels

certain that he obtains as much honey as he would if he used large sections; if he were going to use sections holding less than one pound he would make them narrower. T. G. Newman, editor of the *American Bee Journal*, said that the half-pound sections in the Boston market are about three inches square. He said that if sections were to be reduced in size, it would be better to make them narrower, thus leaving the comb the same size, only thinner. A thin section of honey would appear large, and would thus be more saleable. He is in favour of small sections, as they would help develope the market. Many customers who would buy small sections will not buy large ones. A. I. Root had tried filling the $4\frac{1}{4}$ by $4\frac{1}{4}$ inch square sections with four small sections, and when filled with honey had sold these small sections for a dime each. He objected to smaller sections, because they would require new fixtures. He had found that the bees fill the sections more readily when no separators are used, and that sections $1\frac{3}{4}$ inches wide do not require separators as much as sections 2 inches wide.

The question of overstocking, or having too many bees in one locality, was next taken up. James Heddon had been informed that in Germany 1000 colonies had been kept on one square mile. His bees fly for honey about three miles; but they do not fly so readily over woods. He said that, before establishing a second apiary away from home, a bee-keeper should remember that the same number of colonies can be managed in one yard at half the expense that would be incurred if they were divided into two apiaries. Dr. C. C. Miller has 170 colonies, and obtains 95 pounds of comb-honey per colony, and he would be glad to know if he could have obtained any more honey in the aggregate if he had had more bees. J. H. Robertson, Pewamo, Mich., commenced the season with 350 colonies. He had found his bees working seven miles from home, and thinks that his locality is overstocked. James Heddon commenced the season with 175 colonies, and thinks he had too many bees to obtain the best results. He thinks that locality has much to do with overstocking; that is, one locality will furnish more honey than another. Near the middle of the day there is often some atmospheric change which checks the secretion of honey, and because the bees sometimes stop bringing in honey after ten or eleven o'clock, their owner decides that his locality is overstocked. Still judging from the results, small apiaries yield better than large ones. Prof. Cook has visited the apiaries of D. A. Jones, Beeton, Canada. There are from 200 to 300 colonies in each apiary, yet Mr. Jones finds them profitable. Prof. Cook said that George Grim moved his bees to different apiaries, and found that it paid him to do so.

When the question of prevention of swarming was brought up, Mr. Heddon said that he knew of no method of keeping bees from swarming when working for comb-honey, and at the same time get the best results. W. Z. Hutchinson, J. H. Robertson, and Mr. Benham, all reported excellent success in preventing swarming by using the extractors. The question whether we shall clip the queen's wings was next discussed. Prof. Cook approved of the practice, thinking it saves him the trouble of hiving the swarms, as they can be made to hive themselves. E. B. Southwick has trouble in finding the queens when the bees swarm. Dr. C. C. Miller thought that the hiving of swarms whose queens have had their wings clipped is successful with some and with others a failure. Mr. Heddon thought the bees are not satisfied with a clipped queen, and will get rid of her and rear another as soon as an opportunity offers. Prof. Cook has practised the clipping of queen's wings for seven or eight years, and has seen no evidence of dissatisfaction among the bees. He referred to the fact that ants gnaw the wings from their queens. Mr. Heddon thought that, especially in a large apiary, the clipping of a queen's wings makes more trouble than it saves.—W. Z. Hutchinson, *Genesee County, Mich.*

Correspondence.

**** All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.'*

As it will be the aim of the Editor that the Journal should be published simultaneously with the other monthly serials, Correspondents are respectfully requested to forward their communications as early as possible.

All Correspondence must bear the name and address of the writer, not necessarily for publication, but as a guarantee of good faith.

HOW I TAUGHT MY NEIGHBOURS BEE-KEEPING.

Just about forty years ago I began bee-keeping, having no previous knowledge of the history, habits, or management of bees. One thing I remember, and that was, I was under the impression that bees mostly swarmed on Sundays, which arose from my having seen the deacon of the chapel frequently called out during divine service 'because his bees had swarmed,' when he would proceed to 'heave' them, as the phrase went in Essex at that time.

My first inducement to start bee-keeping was in consequence of the master of a large boarding-school in our village sending to me an improved bee box to have some alterations made in it, and afterwards giving me instructions to make a set of collateral boxes from 'Nutt's' pattern. I had no *Bee Journal* to run to for instruction, but I had *Chambers's Information for the People*, which supplied me with some valuable hints as to the management of bees; and I am not aware that I have seen anywhere else articles more suitable for a beginner. The gentleman afterwards lent me Nutt on *Bee Management*, which showed me what large quantities of honey might be obtained from his collateral hives. I, at once, purchased an old stock in a straw hive, and a bee-keeper gave me another, as he said it was unlucky to buy bees—to which I gave a not unwilling assent. I now started in grand style. I commenced a diary in the spring; I kept a weekly record of the weather, weight of hives every Saturday evening, dates when the bee-flowers were in bloom, first appearance of drones, &c. In the autumn I had the satisfaction of taking a fine super, the first one taken in the district. I then determined to proceed in a larger way. The next spring I purchased all the early swarms I could, placing them in Nutt's 'Pavillions,' as he called the centre boxes, with half-inch ends, each hive painted a different colour. A good summer following, my bees did well, filling their boxes with comb and honey. I placed them on stands in an open shed with an eastern aspect, my neighbours assuring me that the cold would not injure them; but after a prolonged severe winter, I found them all, or nearly all, dead, with abundance of honey and bees. A poor season followed, and I made but little progress, the old bee-keepers laughed heartily at my new-fangled ways. One farmer in particular used to say he did not want to know about the different sorts of bees, 'When they swarm I put uncles, aunts, kings, queens, all, into a skep and set 'em down somewhere.' After persisting for a few years, with varied success, oftener killing them with kindness than neglect, I began to know in some degree how to manage the bees. It was now my turn to have a joke at the expense of my neighbours, as the quantity of honey I took sometimes quite surprised them.

In the meantime, I had made an improved straw hive suitable for cottagers, with platform on top, with three inches opening in centre and zinc slide. I also made the same sort of platform to screw on to the old stock hives, and then cut the opening out; also a

super, octagon shape, four parts wood, four parts glass, with facility for ventilation and enlargement: three sizes, 8 lbs., 12 lbs., 16 lbs. Up to the present time I have not seen anything more suitable for cottagers to commence with, as they are easily worked by the bees, and are all under inspection by the bee-keeper. I sold them in the district, some few of the better-informed bee-keepers buying them from seeing my success.

About twenty-five years ago, there was started in our village a 'gala day,' held in the autumn, the Baronet kindly throwing open his grounds on the occasion. This consisted of a Vegetable and Flower Show with prizes, and a variety of amusements, which made it very attractive, and brought together a large concourse of visitors. I at once offered to the committee some improved hives and supers, as prizes for honey-comb taken without destroying the bees,—artisans and labourers only to enter into the competition. The committee accepted my offer, kindly adding a small money prize to each class. I exhibited in the tent my own honey, not for competition, but to show what might be expected from a greater amount of attention being paid to the bees. This exhibition quickly became very popular. The cottagers who took the prizes would use them to obtain exhibits for future shows; and the other bee-keepers, hearing on all sides the honey-comb admired so much, soon began to try their hands at it, until it became quite a conspicuous feature in the annual show, bee-keepers coming from considerable distances to inspect it. I have frequently seen a splendid collection of honey-comb on the tables. The bees and honey were always referred to by the speakers to point a moral.

After a few years I could have purchased a large amount of honey-comb, and the only reason bee-keeping was not more developed was the difficulty of finding a ready market. Shop-keepers, always buying the 'run' honey at about 6*d.* or 8*d.* per lb., were unwilling to buy at 10*d.* or 1*s.*, and as it required cutting for their smaller customers, many of them preferred the old-fashioned sorts.

There is one fact worth recording, from the time I succeeded in obtaining large quantities of honey from the strong stocks in the collateral hives, my friends of the straw skep never could get much either of honey or swarms, and always laid the blame on the bad season.—An Old Bee-keeper, *Kelvedon, Essex.*

FLOUR-CAKE AND ITS EFFECT.

. . . . . But now as to the subject-matter of the discussion you may allow me to make a few observations: I disagree with all three propositions of Mr. Cheshire. With regard to the first I am satisfied that experience will teach bee-keepers the very contrary of what Mr. C. holds. Moreover, the reason given by Mr. C. is clearly false. He supposes that water is absent from the barley-sugar. Evidently it contains water, and the bees take what has been liquefied by the water or moisture on the surface, or they easily procure this essential of water *aliunde*. I fancy nobody gave the *simple presence* of the necessaries for brood-raising as the *stimulus* for the queen to lay eggs. The stimulating influence always appears to be the *continual addition* from an *apparently exhaustless source* to the store already laid up by the colony, and the consequent activity of hive. Mr. C.'s argumentation does not appear to me to demolish the position of his adversary[?]. I may state here, that the supply ever increasing of these necessaries, pollen, sugar, and water, will not always succeed in inducing the queen to lay. There may be *other* counteracting influences present, and other necessary conditions absent, which may escape our knowledge and which affect the raising of brood. I feel satisfied also that brood-raising may be rendered *excessive* by artificial means, if the condition of the hive is not attended to in all its stages of increasing population.

With regard to the physiological and botanical knowledge displayed in Mr. C.'s contribution, I have nothing to say but in praise.—A Constant Reader, *Ireland.*

BEE-FOOD.

I presume the question of 'E. B.' refers to the bee-food introduced by Mr. Hilbert, and mentioned on page 258, Dzierzon's *Rational Bee-keeping.* The proportions are, 1 litre of new milk to 1 kilogramme of loaf sugar. The sugar is moistened with boiling water before being added to the milk and a piece of salicylic acid of the size of a bean is dissolved in the hot water. If the solution mentioned on p. 278, *Rational Bee-keeping*, is used, the quantity is 6 cubic centimètres, or 100 drops to each litre of milk. For the egg food, a syrup is made of 3½ kilo loaf sugar to 2 kilo water. 60 hens' eggs are beaten up so that the yokes and whites are intimately mixed, furnishing about ½ kilo of egg material. The syrup must be cold before it is added to the egg material. 300 drops or 18 cubic centimètres of salicylic solution are added to 1 kilo of prepared egg-food, the whole being intimately mixed together. A kilo is about 2 lbs. 3 oz., a litre is about 1¾ pints.—S. Stutterd.

[In Vol. iv., p. 219, and Vol. v., p. 12, of the *Journal* will be found *in extenso* Herr Hilbert's paper on 'Bee-food,' to which we desire to refer 'E. B.' for further information.]

TWIN HIVES.

Upon reading the description of a twin hive it occurred to me that it would be desirable to try the effect of placing on it one large super common to both divisions of the hive. A populous hive of bees will gather far more honey than the same number of bees would obtain in the same time if established in two separate hives; and it is this propensity of which I propose to take advantage.

Let it be supposed that there are 40,000 bees altogether in the two divisions of a twin, hive in full working order, with two separate supers as ordinarily managed. There will then be four clusters of bees, viz.,

In the twin, hive division, No. 1 . .	10,000
In the super on ditto	10,000
In the twin hive division, No. 2 . .	10,000
In the super on ditto.	10,000

But according to the proposed plan there would be only three clusters, viz.,

In the hive division, No. 1 . . .	10,000
Ditto ditto No. 2 . . .	10,000
In the large super common to both . .	20,000

It would be desirable (perhaps absolutely necessary) to place a sheet of excluding zinc over the hives to guard against the entrance of either queen into the super.

Many bee-keepers would at once declare the plan impracticable, as the bees would fight. My impression, however, is, that they would live amicably together, as the respective queens would at all times be kept a considerable distance apart, and the entrances to the hives would not adjoin. I and many others have repeatedly changed the places of two hives, the bees in such hives must have been thoroughly mingled, but I have never observed any fighting, the two conditions above mentioned, viz., keeping the queens some distance apart, and having separate entrances to the hives, being observed.

Should the plan prove successful four or more hives might be arranged with one super common to all.—W. B. Hunt, *Cheldon, 16th Jan.* 1883.

PRESSURE THEORY.

I read the whole of your first issue of the *British Bee Journal* with great satisfaction and edification, but I must admit, that the letter or paper by Mr. George Walker, on 'The Construction of the Bee-cell,' raised very mixed feelings. I looked again at the heading. Yes! it was

c-e-l-l: had it been *s*-e-l-l and the 1st of April instead of 1st January I should only have been very, very sorry; as it is I am still puzzled. Perhaps Mr. Walker will kindly enlighten us on one or two points? The bees, it seemed to him, were helping 'the pressure theory.' How does the 'pressure theory' get on when the bees don't help it? and where,—oh, where, does the 'pressure' come from?—THE FARMER.

SIR J. LUBBOCK'S EXPERIMENTS—WINTER DRAUGHT PREVENTERS—PRESSURE THEORY.

Having read the notice in the January number of the *Bee Journal* of Sir J. Lubbock's experiments with bees, it struck me that sufficient attention (from a practical point of view) has not been paid to the fact of there being, or not being, natural flower honey obtainable. In June with honey prevalent I have no hesitation in extracting out of doors, and, as a rule, the bees do not trouble one in any way. June experiments would, therefore, be useless, and it would have rather surprised me if the bees had returned to the honey in June or July. Experience seems to show that bees will return 200 yards to honey, and that such would have been the case in the August experiments if there was not heather or other natural honey in the neighbourhood. The very idea of bees coming through the little passage into the room and returning in nearly each instance the same way seems to me curious, unless the honey was quite close to the hole. I should have expected the bees to fly to the window after sipping the honey; at least, such is my experience with tunnelled passages. With regard to communication of ideas, I have always considered that a bee communicated the discovery of honey by 'fanning,' thereby causing some excitement round it, which would soon spread to the hive generally.

It may be interesting to some of the readers of the *Journal* to know my experience with winter draught preventers. I tried a modified form of a kind suggested by Mr. Simmins eighteen months ago; I found them admirable for the purpose intended, viz., to stop the draught in hives; but they worried the bees dreadfully, though the passages were always clear, the bees gnawed the wood in the most extraordinary way, evidently with the idea of removing the obstruction.

I am always interested to see articles on the construction of the bee-cell—a very difficult problem. The theory or pressure of six round one seemed to me at once answered by a remark in some former number of the *Journal* (by the late editor, I think), viz., that queen-wasps working by themselves build perfect hexagons.—A. G. R., *Fonthill, Tisbury.*

EARLIER SHOW—MORE FREQUENT ISSUE OF THE *BRITISH BEE JOURNAL.*

On page 182 of January No. of *British Bee Journal*, column one, you state there is some chance of the British Bee-keepers' Association holding their Annual Show at an earlier date than heretofore. I am very pleased at the proposed change, but I think to ensure a good show, and have a large entry of honey it would not be advisable to hold it earlier than the middle of July. I hail with delight the contemplated change in the more frequent issue of the *Journal:* would it be possible to issue it weekly at 2*d.*? if so, it would be a boon to bee-keepers. I don't think there would be any lack of matter to fill it, and as we advance and increase the circulation would increase also; if each subscriber now will undertake to procure only one more subscriber the circulation will be doubled at once. Let each and all of us try, and not let our Yankee cousins boast of having 'the only weekly Bee *Journal* in the world.'—WOODLEIGH.

THE PRESENT SEASON.

The exceptional mildness of the season after the 'cold snap' of last month is perplexing to beginners. The golden rule that bees must not be disturbed during the winter is to be read with reserve, and the condition of each stock is to be considered. There must have been great consumption of food, and, perhaps, breeding has been going on; it will, therefore, be necessary that the bee-keeper, unless satisfied the store is sufficient to last until the spring blossoms furnish new supplies, should take advantage of this still and mild weather to give additional food. This food must, if possible, be in the form of sealed honey—in any case, must not be too liquid nor too stimulating. Should it, then, be deemed necessary to open the hives it can be done now without serious risk, and if so, cleaning must also be attended to, everything be made as compact as possible before closing. But for the hives to require this treatment there must have been bad bee-keeping in the autumn.

When the store is sufficient nothing more is required than to shade the entrance-door, and (which is best done after dark) keep the doorway clear of dead bees by the use of the wire hook. Let the ground round the hives be well strewed with lime and salt to keep down the growth of weeds.—D. S., *Jan.* 22, 1883.

BEE-STINGS.

There have been frequent inquiries in the *Bee Journal* as to the best remedies for the cure of bee-stings. May I be allowed to say that a safe, simple, and efficacious remedy will be found in the immediate application of vinegar and soda, say in the proportion of one table-spoonful of vinegar to a piece of soda about the size of horse-bean? It quickly dissolves, and the ingredients are generally at hand in most households. When passing our bee-house during the summer, a bee accidentally flew with great force on to the fleshy part of my eyelid near to the outside cavity. By pressing one's finger at that particular point, it will be readily understood how delicate and dangerous a position it is for the injection of bee-poison; but the 'gude wife,' ever on the alert, soon had the solution ready, and by frequent dabbing, and after application of wet pieces of linen, the swelling subsided, and no further pain was felt, if we except the inconvenience of a little stiffness for a day or two. It is an excellent plan when manipulating bees to have the hands well smeared with honey. It softens the flesh, and greatly alleviates the pain if the operator should chance to be stung—chance, because the stinging generally occurs through direct provocation. I was so stung five times during the time I was overhauling my hives. One had crawled under the wrist-band, and when pressed by the action of the hand resented the squeeze; two did the same through being pressed between the fingers; and two through my injudiciously laying my hands upon them without noticing their presence. I felt but little inconvenience from these stings, because I immediately applied more honey to the parts affected; and after finishing my operations, used the solution mentioned above with the best possible effect. This solution we have applied both to children and adults with like results.—J. J. BRENCHLEY, *Lutterworth.*

BORAGE FOR CATTLE.

Seeing an inquiry from 'J. R. Haig, Blairhill, Perthshire,' p. 170, December *Journal*, respecting borage, 'Is it good for sheep and cattle?' and not seeing any reply to this in the *Journal* for this month, I write to say that I have encouraged the growth of borage in my field on heaps of garden refuse, and spare corners for my bees for many years, and I have never seen it eaten by my cow

in its green state; and, therefore, I should say they would not eat it if grown among seeds, grass, and cut for winter eating. I also had this year some mustard sown; the cow did not notice it, but one day a horse was in the field, it soon made work with the mustard, but did not notice the borage.—Paul T. Barlow, *Congleton.*

CLOSE-ENDED FRAMES—STANDARD FRAME TOP BAR.

A great deal has been written concerning the way in which bees build the ends of their combs against the sides of whatever place they may have chosen for their abode, and which constitutes their 'natural' mode of comb-formation. More familiar instances are the flat and round topped straw-skeps. They are said to build their combs so as to make them 'heat-retaining!' and that by using close-ended frames in square hives the same end is gained. In all the close-ended frames that I handled this year, I found an open space in the upper corners of each frame, about a half-inch square or so, and the combs were rarely attached down the side more than half way, and then only partially so in most cases, as there were one or more passages left. I opened up and transferred many flat and round topped straws and found the conditions just the same. In a straw-hive these passages might be closed up by the bees clustering in them, and so make them 'close-ended;' but do they do that? It is not so easy to examine them in the winter, but a large swarm in a moderate-sized straw skep would probably be compelled to partially cluster on the outside edge of the combs, and therefore make them 'close-ended' by filling up the open spaces, and the round form would conduce to this end. In the close-ended frames the open spaces I allude to would do away with their heat-retaining properties unless filled up by the clustering bees, as in the round skep. I have six strong stocks, on from four to seven frames (close-ended). I have taken advantage of mild days to examine them about four times this winter, and in every case I found the bees clustering between the combs, and none on the edges as far as I could see,—down about half way, so as to close the open passages. This appears to me to go to prove that in a square hive, unless perhaps very much contracted, close-ended frames do not fulfil the object their advocates suppose they do, so that contracting open-ended frames will answer the requirements for winter, and will allow the equal distribution of heat to the bees on the outer portion of the cluster. Contracting close-ended frames is advised for winter, but if they are heat-retaining there would be no necessity to do so. As the bees do not, as far as I can ascertain, make the ends close by filling up the passages, open-ended frames are sufficient. It is the compactness of the skep and the Stewarton that makes them so good for wintering, the nearest approach to this can be got by contracting the space of square hives.

Dzierzon's knowledge of bees is very great and interesting, but in comparison to the modern bee-keeping how clumsy and cumbersome are his hives and system. If that is the best system in Germany, what is behind must be queer indeed.

It is to be hoped that the length of the top bar of the Standard frame is not finally settled without consulting the opinion of bee-keepers. If 15½ in. or 16 in. had been decided on it would have been very easy for those who had longer top-bars to reduce them and fill up the space thus made by a lath, but it will cause no end of trouble and expense to change shorter bars to 17 in., and, as a consequence, also to have to enlarge the hive, which cannot be done at all in many instances. Where plain top-bars are used there will be greater space for loss of heat, whereas the 15½-in. bar would be as good as the wide-shouldered without many of its many objections; these wide-shouldered bars are very nice in a new hive, but when in work for a while they become much propolised and get worse each time they are moved, and don't rest evenly on the runners so as to retain the heat, and in pushing them together bees get crushed if you are not very careful, and bees that get outside the runners get imprisoned there when the quilt is laid on. A cottager can buy frames with distance-pins for half the price of the others. Distance-pins are best made of stout wire, or panel pins, or nails with very small heads, they do not then get caught so much. If the distance-keeper, of whatever sort used, is put in the side-bar about half inch or a little more, they will never telescope.—J. Crosbie Smith, *Passage West, Co. Cork.*

CLOSE-ENDED FRAMES.

I see several remarks in January number of the *B. B. Journal* respecting close-ended frames, particularly by Mr. John Hewitt, of Sheffield. I am of all bee-keepers an amateur, and every particle of knowledge I possess has been obtained by reading. I am most indebted to the *B. B. Journal.* Several years ago I made a close-ended frame-hive out of my own ideas. The top bar was too weak, the ends too long (resting on the bottom), and I found difficulty in working them. I killed many bees, and it grieved me. I improved on this hive, and concluded to adopt an uniform one. I am a station-master, have been on the railways since I was nineteen years old, without any knowledge of wood-work. I make all my own hives, have let my friends have a few copies, and can positively contradict the statement made by Mr. Hewitt, that an amateur cannot make the close-ended frames. I find no difficulty in working them, and by their use I have obtained just three times as much honey in 1882 as I have done in any one year since I began. My hives are made a little different from any I know, and I will give the particulars by your permission.

I use all pine-wood dried in a stove. There is no curling, and it does not expand across the hive, and very little indeed lengthway. I use for body ½ in. pine, inside measure 14½ × 8¾ deep × 24 in. long; bottom-board ¾ in. pine. The cover is made to fit loosely 5½ sides, ends 11 in. in centre, with a projection in front of 7 inches. The bars or frames are made to work into the 14½ in. across the hive, their inside measure being 13¾ in. long by 8 in. deep. When in, the frame-ends and hive side make the wood ⅞ in. thick.

Some people think them too thin and adopt packing, dead-air space, &c. I have never found their need, and deny they are necessary. I have never found an English winter too severe for the bees yet, and do not think it is requisite to do more than see they are well prepared early in autumn, reduce to six bars, increase the cover two extra pieces of flannel, and, if the queen is in a normal condition, they will winter safely.

To manipulate these hives I find no difficulty. As soon as I remove the cover I put a thin-bladed table-knife between every bar as gently as possible. If any are built out beyond the next bar I pare it off; it is no loss to do so. I then proceed to take out the frames as required. My extractor is made for the frames to fit, to prevent breakage.

Mr. Samuel Simmins says his frames rested on ⅜ in. rabbets. This sounds like my first lesson, where I made my ends reach to the bottom, and every time I let a frame down the bees were sure to be there ready to be killed.

For my part I see no more difficulty in working the close-ended frame than any other sort, and I do not think it right in an amateur (because he fails) to cry a thing down that others can manage comfortably. In spite of all that has been said, I can positively say that I fail to find the difficulties that some other amateurs meet with in their endeavours to find the most suitable hive.—Geo. Stocks.

CONSTITUTION OF HONEY, AND NATURE OF STIMULATING FOODS.

(*Continued from p.* 196.)

That brood cannot be raised without more water than evaporated honey supplies is known to every one who has studied the question, while it has been frequently observed that feeding with strong syrup does not stimulate to breeding so effectively as though more water and less sugar had been given. The reason is clear: the growing larva absorbs most of its food through its external skin, and even if all were swallowed the operation of absorption, as with all animals, must be effected through the agency of water. The first half of the law of osmose may be simply expressed by saying that the more diluted fluid diffuses into the denser: if then the food be dense by reason of deprivation of water, absorption and nutrition can only be very imperfectly effected. In the dry and biting east winds of spring stocks busily engaged in brood-raising will often persist in flying in a manner that must thin their ranks sadly, and many times I have discovered that the secret of the whole has been water-dearth. Giving them a little very thin syrup, although for a short time causing excitement, soon brings flying abroad to a minimum. Shaking water into a comb, and inserting it beside the brood, has been recommended, and is certainly successful, its chilling effect being the drawback. While honey is being gathered freely, no other water is required than that which the honey furnishes. I have recently been making very careful microscopical dissections of the ligula or tongue, and the discovery of hitherto unnoticed systems of hairs, which by their capillarity assist in honey-gathering, makes clear why thick honey or syrup gives the bees trouble. To use an American writer's expression, 'They don't seem to know what to do with it.' These hairs have astonishing fineness, being no more than $\frac{1}{3500}$ inch in diameter, and most of them probably are considerably smaller. These minute hairs with fluid honey are of immense service, but thick syrup would not flow between them.

Sufficient has now probably been said to show that in cold weather in dry hives flour-cake is in no sense a stimulant; but before leaving the matter I wish to explain why I have so constantly recommended the cakes to be made of pea-flour instead of wheaten flour. Pollen is very rich in nitrogenous matters and salts, containing in abundance phosphorus, sulphur, and potash. Its substitute should clearly, as nearly as may be, be similarly constituted. Comparing wheaten with pea-flour, we find the former yielding seven times as much starch as nitrogenous material, while in pea-flour starch only a little more than doubles the quantity of fibrin. Again, in pea-flour the mineral matters are four times as great as in wheaten flour, so that no doubt of its superiority, so far as composition is concerned, is possible. When flour-cake of any kind is given, a certain portion of the flour is refused, and is thrown to the hive floor. A microscopic examination of this shows it to consist almost entirely of cellulose and starch substances picked out actually by the marvellous discriminating organs of the bees. Starch is quite useless as food for any plant or animal until it can be converted into gum or sugar, and so reach a soluble condition. To effect this transmutation animals are commonly possessed of a diastatic ferment in the saliva, as well as a second ferment secreted in the digestive tube, which can accomplish this important change. In the human infant under six months this ferment is absent, so that starch is to it no food. For aught we know it may be so with bees, and if so, starch is undesirable because unavailable, and hence we may have a second strong reason why wheat-flour should be rejected.

But to return. Mr. Henderson adds that by the administration of flour-cake in winter, 'the queen is stimulated at a period when rest and quietness should pervade the hive; eggs are deposited, the bees do not sufficiently answer to the call, the brood is not matured—it becomes chilled, and if not attended to promptly, the most deplorable consequences will follow.' I cannot forbear strongly marking my dissent to each of these positions. It is, firstly, so far as my observations of bees go, quite a mistake to suppose that stimulation begins with the queen; but this seems to be understood here, or what can be intended by the bees not answering to the call? Something like this may happen when a very vigorous queen, briskly ovipositing, is transferred to a rapidly dwindling because aged lot. She fills soon all the cells the bees can cover, and then does her work over again by adding a second egg to each cell. The grubs hatch, and are partly reared, but each day sees a marked reduction in numbers, as decay and accident do their work, and by the time the brood is sealed the colony, as then existing, is overweighted. Cold weather possibly arrives, and before any bees hatch out, much of the brood is dead from chill; but I respectfully question whether anything like an instance such as that stated by our friend could be cited. Bees frequently eat eggs that the queen has laid, just as they often destroy the queen-cells they have matured because circumstances alter cases and stoppage of food supply, or cold or persistent rain, may fully account for their changed behaviour. While making experiments on slow feeding I found it possible to get wide breadths of eggs laid, but a single twelve hours' neglect would almost certainly cause a large proportion of them to disappear, which again shows how completely the bees hold the production of brood under their control.

That the queen owes her stimulation to the workers, and not to our feeding, is to my mind established without any fear of contradiction. By enlarging the brood-nest we can, it is true, induce very dangerous quantities of brood to be raised, but our power lies in acting not upon the queen but upon a natural prompting of the workers, which has a very beautiful and scientifically accurate basis.

I cannot now conclude all that I should like to advance, and so will return to the question, as a cheaper, better food is needed than ordinary sugar syrup, notwithstanding its present low price.—F. Cheshire, *Avenue House, Acton, W.*

SOLILOQUIUM PUERI.

'A bee or not a bee?' Thus mused an urchin,
Feeling something creeping up his trousers:
'I wonder if 'twere better to let him wander
All unmolested o'er my naked surface,
Than to dispel this grim anxiety
By fiercely striking him? To strike—to kill,—
No more.' And by a kill it means to guard
Against the anguish consequent upon
His charge in battle:—'tis a consummation
Devoutly to be wished. To strike—to kill—
To kill! Perchance to miss! Aye, there's the rub!
For in that fierce attack upon the beast,
Suppose a misdirected blow should leave
Him little harmed! There's the respect
That makes calamity of such a course.
For who would risk conjunction with the rear
Of yellow-jacket, or the vespa tribe,
The hornet slim, or cumbrous bumble-bee;
And, worse than all, the merriment of those
Who eagerly are waiting the result,—
When he himself might his *safetus* make
With one good slap? Who would chance take,
To howl and dance, should him the spirit move,
But that the dread of only maiming him—
Awakening in the foe such vengefulness
That there be no escape, withstays the hand,
And makes us suffer rather with suspense,
Than tempt unerring vengeance with a blow?
Thus danger does make cowards of us all,
And thus the native hue of certainty
Is sicklied o'er with the pale cast of doubt;
And schemes devised which might insure success
Are lost through hesitation.

Echoes from the Hives.

Sussex.—'The month of January has been particularly mild, and though generally dull and wet there have been occasional sunny days, when the bees would take a good cleansing flight. I am so impressed with the value of mustard that I intend soon to sow every vacant piece of ground I have with it, so that it will come in before any field crop. Having many stocks I shall, of course, expect no surplus from the small area (about an acre) of early bee plants I may have, but when these little crops once begin to blossom they will encourage the bees, and greatly help the production of brood, enabling them to take advantage of the first field crop, which in this locality is the yellow trefoil. I have never yet known this plant fail to produce honey. Even last year, after the destructive gale of April 29, which seemed almost to destroy everything, it rallied sufficiently to enable the bees to gather many pounds, though at the time we had a cold, drying, east wind.'—SAMUEL SIMMINS, *Rottingdean, Brighton.*

Essex, Kelvedon.—'My stocks are far from strong, as a rule, but I have been feeding for some time (very late, you will say), but it was a necessity, as it was late before I examined them. I found them so weak that nothing but continuous feeding would keep them alive. The plan I have been adopting is:—I cut a circle in wood about four inches diameter (some smaller), and one inch thick. I then pour the sugar-cake into the circle, thus making a round cake about one inch thick. I then place it over the opening in top of the hive, and cover it with a piece of glass, the bees then feed from underneath, the glass keeping it air-tight, and enabling anyone to see when it is finished without disturbing them. My bees seem to thrive upon it; I think it would do well for spring feeding, mixing some pea-flour with it to supply the place of pollen.'—W. T. B.

Yorkshire, Rastrick.—Weather Statistics.—'I have cut out from *Leeds Mercury* a weather report; it might be interesting if reports of this kind could be collected from different parts, and given in the winter and spring for comparing one season with another. The weather of 1882, showing the number of fine and rainy days in Leeds during 1882, together with comparison with previous years:—

	Fine	Rainy		Fine	Rainy
January ...	17	11	October ...	9	22
February ...	19	9	November...	4	26
March ...	15	16	December...	10	21
April ...	14	16			
May	19	12		152	213
June	12	18	1881	180	185
July	4	27	1880	189	177
August ...	12	19	1879	172	193
September...	17	13	1878	198	167

Only 93 days fine from March to September, 1882.—W. G.

Cairnie-by-Keith, N.B.—'On January 1 the weather was fresh and mild, and the bees enjoyed a grand airing, which has proved very beneficial after their long confinement. The month of December was one of intense frost, and great fears were entertained regarding their safety. However, an examination of one or two hives on New Year's day proved very satisfactory. Several swarms of the previous year were standing in boxes having only ¾-inch backs and fronts with ⅜-inch sides, all were perfectly dry and healthy. In my examination I did not observe any brood. In severe winters when the hives were covered with snow to the depth of several feet I have always found brood in the month of January. During the present month the weather has been very changeable; very little snow, indeed scarcely any, has fallen since the end of December. At the present date, January 17, the weather is fresh, and to-day I observe the bees in several hives taking a short trip out-of-doors, some are likewise cleaning out their dwellings in the shape of casting out a few dead bees, and a considerable quantity of small comb-cuttings resembling fine saw-dust. So far as I can see everything connected with the apiary is in a satisfactory condition.'—A. COCKBURN.

Hunts.—'During the past month the weather has been remarkably mild. Bees have, in consequence, been repeatedly on the wing. On January 9 a very warm day, my apiary, for the quantity of bees out, looked very much like swarming time. My bees, with the exception of two stocks in skeps bought from a cottager late last year, are remarkably strong and healthy. The majority of cottagers in this neighbourhood, adopting the plan of taking up the heaviest and lightest of their stocks, have their skeps in pretty good condition. Others who only think about making a display, hive each "swarm cast and colt," and as a natural consequence, after such a bad season as last year's the majority of their stocks contain very few bees, and hardly any honey. Of course, they never think about feeding, if they do it is in the middle of winter when "a little warm syrup will do the poor things good." I hope to get all the cottagers into our Association. There is plenty of scope for the Association in this neighbourhood, and I hope before the autumn much will be accomplished.'—C. N. W., *Somersham, Jan.* 22, 1883.

North Hants.—'The mildness of the weather of late has kept bees in our district active, and in some hives I find breeding has commenced; this mild weather has also caused the stores of honey to disappear rapidly, and wherever a slender stock of honey is to hand in a hive its owner will do well not to forget to keep that stock supplied with either barley-sugar, or by preference, the barley-sugar cake in which pea-flour has been used.'—W. H., *Warnborough.*

East Derbyshire, Jan. 19.—'Yesterday was delightfully fine and warm, and bees from all my hives enjoyed a flight in the sunshine. I took the opportunity to examine most of the frame-hives, and was agreeably surprised to find all in good condition, and perfectly free from dysentery, although the weather here has been unusually damp and cold, and every stock commenced winter with nearly all stores unsealed. In four or five of the stocks examined I found small patches of brood in all stages, notably in two, to which I had introduced Ligurian queens early in October. These were fine, healthy queens obtained from Messrs. Abbott. They did not commence breeding when first introduced, but seem now to be going on in earnest. I can thoroughly endorse the opinion of one of your correspondents as to the value of a plant he calls Impatiens trieuspida. It is one of the very few plants worth growing, especially for the bees.'—G. S.

Lincolnshire, Jan. 19.—No rain to-day, what a blessing! and to see the sun once again, how cheering! My bees are on the wing, bright and merry, and to see them looking healthy and bright is most pleasing. Looking into my bar-frame hives what do I find? Large families with scanty cupboards, but, thankful to say, no sign of any youngsters coming on. After having supplied the needy with good stuff I packed all down close again with clean, dry quilt—thus to wait my next visit. My stocks in straw hives are better fixed as regards store; but they do not appear so strong. The very extraordinary wet seasons of late tell sadly against the well-doing of straw hives standing in the open. I intend in future to keep all my stocks that are in straw hives under cover. From various quarters in Lincolnshire reports state that stocks are far from satisfactory, many, though left with fair store, are now almost bare, and many, no doubt, will be left to chance. In Lincolnshire we are hoping that after May you will wake us up weekly.'—R. GODFREY, *Grantham.*

Gloucestershire (North), Jan. 20.—'Bees generally very poor in food and poor in numbers, but as lively as kittens, and very healthy, being out every opportunity; to-day especially they were out very strong for four or five hours; should we get a second winter as the days begin to lengthen they will stand it all the better for a few sunny days now. They are very short of honey, as the days for autumn feeding were soon stopped by the early cold and wet; but they are eating their sugar-cake kindly and freely. I think most of the queens have been breeding all winter. Three Ligurians bought in September have actually increased the numbers in their hives since then, and more than half the bees now are Ligurians. Some of the weaker hives seem to have considerable difficulty in dissolving their cake; and as they are all of them in skeps I shall have to do a little serious thinking to find some means of getting them safely through till I can feed with liquid.'—Geo. C. S.

Warwickshire, Jan. 20th.—'The first four days of this week have been very nice and mild; bees have been flying every day. Most stocks are well off for bees, and some have consumed a lot of their stores; while others appear to have got dysentery, though they are very lively; I fancy the dysentery is caused by the black honey that was collected in August. It seems to be very little good, either in the hive or out, for what I extracted is so black I cannot sell it. During the past month tom-tits have been very troublesome, eating the bees by scores; so I got a small steel strap and caught three of them, and the others appear to have taken the hint and gone off. The mice also have been a source of annoyance, getting into and on the tops of hives, and gnawing the quilts, &c., where they have half a chance. About a month ago I picked up hundreds of bees that had come out for a flight and settled on hive-roofs, &c., and got chilled. I warmed and syrupped them, and let them run up and join themselves to a very weak cast that I bought late in the autumn; they appear to have united peaceably. I kept them shut up for a month or so, and only let them out for a flight this week, hoping the joined bees would not go back to their respective hives.'—J. W.

Whissonsett, January 8th.—'I think that an apt quotation you make in your editorial notice this month where you refer to County Associations thus:—That we must "look unto the rock whence we are hewn;" and wouldn't many of our little favourites, if they could but talk, finish the verse, "And to the hole of the pit whence *we* are *digged!*"—Alfred E. Booker Hill.'

Dunmanway, Co. Cork, Jan. 5.—'We had a great yield of honey here this harvest. Ordinary skeps weighing 56 lbs. I got a lot of condemned bees which I put into bar-frame hives, some of which collected as much honey as would nearly bring them through the winter. I take a great interest in the *B. B. Journal*, and would like much if there was a more frequent issue.'—John H. Atkins.

Hanwell, W., Jan. 9th.—'Most of your readers as bee-keepers are in a position to testify, and some of them have testified, to the great value of the services rendered by Mr. Charles Nash Abbott to the cause of apiculture. Their practical knowledge enables them to appreciate, better than I can, the results of Mr. Abbott's labours; but many of them have not had the same opportunity as myself of observing from its commencement the patient labour and intelligent research by which these results have been obtained, and by which Mr. Abbott has been in a large degree instrumental in creating what is really a new industry in this country. I hope the testimonial will be one fitting the occasion. Will you please add my name to the subscription list for 1*l.* 1*s.*?'—Edward W. Mantell.

Queries and Replies.

Query No. 538.—1. I find at certain times of the year large numbers of 'earwigs' about my hives. Do these do any harm? and if so, what is the best way to get rid of them?

2. I find on removing my straw skeps sometimes numbers of maggots of different sizes around the bottoms. These I take to be the larvæ of the wax-moth. They are white with hard, reddish heads. Kindly say if they are what I take them for? if they do harm? How to get rid of them? and if they will get into the wooden bar-frame hives?

3. I have a queenless stock; what is the best thing to do with it? Unite them with another stock or destroy them?

4. When can I begin, with safety, to transfer bees from straw skeps to bar-frame hives?—Goonhilly.

Reply to Query No. 538.—1. Earwigs are pests alike to the florist and the apiarian. Through their capacity of flight and the litheness of their bodies they find an easy access to hives. The warmth of the hive is their great inducement to domicile themselves therein. The remedy against them is having the entrances narrow, using hives well made with sound and well-seasoned wood which will not admit shrinking, and constant vigilance. They are not harmful to the bees; and it may be a slight source of comfort to know that earwigs make up for the trouble they cause by diminishing the number of other insects.

2. Doubtless what are observed are the larvæ of the wax-moth. Wax-moths are both pests to the bee-keeper and enemies to the bees—perhaps the direst enemies they have to contend against. Use the same precautions as against earwigs; and as the prevalence of the wax-moth is an indication of the weakness of the stock, the sure remedy is, 'Keep all your colonies strong,' and destroy at sight every moth, larva, and chrysalis.

3. Unite or destroy!—a lugubrious alternative. It must be of advantage to the queenless stock to be united; and as many stocks are weak in the spring, the stock with which it is united would be benefited by an accession to its numbers, great care being taken that both stocks are gradually brought together.

4. The best time for transferring is in summer, when the combs contain the least quantity of brood; and the combs are lightest about twenty-one days after first swarming.

Query No. 539.—Is there any special work on queen-rearing? Last September I successfully introduced Ligurian queens into four of my stocks, and should like to know the easiest and best way to rear queens to put at the head of others.'—John H. Atkins.

Reply to Query No. 539.—Messrs. Abbott's *Leaflets* 'Liguriauizing,' 'Managing an Apiary,' No. 2, and 'Stocking Nuclei,' would afford our correspondent considerable information on the subject of queen-raising: also *The Simmins' Method of Direct Introduction* would be of great service. All authors, however, of books on bee-keeping devote many of their pages to the treatment of this most interesting and important operation of the apiary. If, with much trouble and expense, the bee-keeper has been enabled to procure a strain of bees whose fertility, honey-gathering qualities, and hardiness of nature, are such that he considers them desirable to be retained, it is but natural that he should be anxious to place queens similar to those he has at the head of such stocks in his other hives also. Mr. Cowan considers it one of the desiderata of successful bee-keeping that queens should be young and vigorous, and that they should not be permitted to work longer than two years. He has, therefore, had an extensive experience in the rearing of queens, and we feel sure that we cannot answer

our correspondent to better purpose than by transferring to our pages the method adopted by him: 'In the spring preparation must be made for commencing queen-rearing early. Select the best colony you have, and make it strong by commencing stimulative feeding and spreading brood. This hive should be furnished with worker-combs and kept for raising queens only. For the purpose of raising drones we must select another equally good colony, and commence stimulative feeding early, and when strong enough introduce drone-comb into the centre of brood-nest and feed more rapidly. In this way, by a judicious selection of stocks, we not only prevent that close in-breeding which results if queens and drones are raised in the same hive, but are able to improve our race of bees by perpetuating the good qualities of our best stocks. If we have induced early breeding, drones should be hatching out in April, and as soon as this is found to be the case, remove the queen from the other hive that is being stimulated, and which has only worker-combs. Examine the combs, and cut off the edges from one containing eggs; or, if preferred, holes may be cut in the brood-combs containing eggs, and this will generally insure the starting of queen-cells in such places, provided we take the precaution not to cut away all the cells containing eggs. Place this comb in the centre of the hive, and the colony will at once begin forming queen-cells. If these directions are carried out we have queen-cells started under the most favourable conditions. From ten to twenty queen-cells will be started, and in eight to nine days from the time when the queen-cells are commenced the bee-keeper will be ready to form his nuclei. The bees should be gathering both honey and pollen in quantity when the cells are started and until they are capped over, otherwise they must be supplied with food artificially. If it should be thought requisite to raise any more queens, all the queen-cells in this hive can be removed to form nuclei, and we can again supply eggs from our next best colony, and thus we can keep the same queenless colony raising queen-cells until we have as many as we require. When all the queen-cells are removed, we can build up this stock by introducing a fertile queen and capped brood.'

Query No. 540.—1. Is it a great disadvantage to bees having their pasture at a distance of a quarter or half-a-mile instead of having it immediately beside the hives? 2. Do bees pursue any system or order when visiting flowers? or do they work at random, so that one blossom may be passed over for a whole day, and its immediate neighbour visited by a hundred bees during that time?—W. E. Best, *The Cairn, Lurgan.*

Reply to Query No. 540.—1. The nearer the pasture is to the hives the better, although bees will readily go a quarter or half-a-mile if they can gather nothing nearer home. A bee would make a great many more journeys to and fro if the pasture were near than if it were at a greater distance, consequently there would be a better chance of collecting a larger quantity of honey. Bees will even go farther in search of food than half-a-mile, but only when they cannot get anything nearer. 2. Bees have a most important part to play, namely, in fertilising flowering plants, and instinct teaches them to pursue a proper order in visiting flowers. If the pollen grains carried on the hind-legs of a bee be examined under the microscope it will be found that they consist of grains all exactly alike, although they may be quite different from the pollen grains carried in by another bee from the same hive; and if that bee were marked it would be seen that every time it returned it would bring with it the same sort of pollen grains, showing that it had visited the same sort of flowers. Bees will visit during the day flowers of different varieties, but always of the same species, and by this agency new varieties are obtained. For instance, Trifolium hybridum (alsike clover) has been produced by the cross fertilisation of the two varieties of the same species, Trifolium repens (white Dutch clover) and Trifolium pratense (broad red clover). Were bees to go from one species to another the purposes of nature would not have been fulfilled, and hybrids would have resulted. Once I had some buckwheat that had got some mustard sown with it by accident. Both came into blossom at the same time, and it was interesting to watch the bees on these two flowers. With unerring instinct they passed from one buckwheat flower to another, passing by the mustard, and those working on mustard did not take the slightest notice of the buckwheat.—T. W. C.

Query No. 541.—Would the use of a vessel composed of sheet zinc be detrimental to honey if used as a 'ripener,' or as a receptacle for bee food?—E. S. R.

Reply to Query No. 541.—The use of a zinc or galvanised iron vessel for the temporary reception of honey is not in the slightest degree objectionable. If, however, *thin* honey be allowed to remain in one sufficiently long to ferment and turn sour a slight action of the acid on the zinc will render it rather more unwholesome than before. Zinc honey extractors, &c., should, therefore, be carefully washed before being put by for any length of time. *Thick* syrup, &c., containing a small quantity of acid does not seem to be in any way affected by zinc, even though allowed to remain in contact with it for a considerable time. This is, no doubt, owing to the thickness of the syrup preventing any circulation, so that no union of the zinc and acid can take place.

Query No. 542.—*Carbolic Acid.*—1. In Volume III. of the *British Bee Journal*, No. 31, p. 141, I see that the Rev. G. Raynor strongly recommended the use of carbolic acid as a bee-quieter. From his description it seems to be much more effectual than smoke in inducing bees to move when you wish to examine a hive, and it would really be invaluable in that most formidable part of bee-keeping, taking sectional supers. Is there any reason against using it? 2. But the mixture that Mr. Raynor recommends, of equal parts of carbolic acid and water, is surely too strong, and if smeared on the top bars might it not induce the bees to leave their hive? A detailed reply to the above will be much appreciated by—A Hampshire Lady.

Reply to Query No. 542.—The effect of carbolic acid on bees is powerful, but not so lasting as that of smoke. Its strong scent alarms and quiets them, but does not cause them to rush to the honey-cells and gorge themselves. It is very useful when applied, as Mr. Raynor describes, on removing the quilt, and will intimidate the bees sufficiently to allow the propolis to be removed from the top bars of frames, when packing for winter is desired, or other operations to be performed. When Mr. Raynor's recommendation of carbolic acid was written the improved modern smoker was unknown, and very few smokers of any kind were in use. It would by no means be advisable to apply it for removing sections, since the discoloration of the sections, and the retention by them of the powerful and unpleasant odour, would be most objectionable; and there is no necessity since, when sealed over, their removal is one of the easiest operations in bee culture. In the middle of a fine day a little smoke blown through the top of the sections will drive down the few bees remaining at home; the section-frame should then be wedged up at the back, and a little more smoke injected beneath it when it may be quietly removed, the sections taken out separately, and any bees adhering brushed off with a feather. Carbolic acid varies much in strength, but we should dilute it with at least six parts of water to one. Even then it must be used carefully as its powerful acidity destroys bee life. The bees, however, will give it a wide berth, and neither carbolic nor any other application will cause them to desert their hive under the circumstances you suggest, at least while life remains. In our experience it may be most usefully employed, as Mr. Raynor states, when urging swarms, shaken out on a sheet, to enter the hive.

NOTICES TO CORRESPONDENTS & INQUIRERS

J. Traynor, *Tinahely, Wicklow.*—We are obliged by your suggestions, but the limits of our space will not admit of the treatment of pig and poultry raising, fruit culture, vegetable farming, &c.

W. G., *Leeds.*—The proximity of your Ligurians and black stocks will result in a mixed breed. Ligurianising, as you suggest, is the sole means of preserving purity; but that will be efficacious only in the event of there being no black bees in your immediate neighbourhood.

J. R. Williams, *Porthywaen.—Top bar of the Standard Frame.*—The argument used in favour of a long top bar was, that it could be cut shorter to suit any hive, and that for those that used broad shoulders pieces could be nailed on.

R. Walker, *Pontefract, and others.*—Your suggestions as to more frequent issues of the *Journal* have been gratefully received, and will have due attention. We may, however, say that the *Journal* would not be complete without a record of the shows, the persons who take an interest in them forming the larger portion of the subscribers, and also give the most liberal support to the Associations which do so much for the spread of bee-keeping.

L. G.—The quarrel between M. Giotto and M. Hamet respects a new theory propounded by M. Giotto, the pith of which is that according to his observation the mating of the queen with the drones takes place in the hive instead of being the object of a wedding trip.

Anon.—The result of many experiments leads us to the conclusion that bees will not take artificial pollen in the dark. They have taken it readily when put at their entrances or feeding-holes in day-light, but all our attempts at administering it within the hives have hitherto been failures, unless combined with sugar as in flour-cake or in syrup, in neither of which forms do we consider its general use desirable, it being liable to cause fermentation. Bees will readily take water under any circumstances when they require it. We do not, however, think it advisable to give it within the hive.

E. D'Olier, Jun., *Bray.*—We know of no ordinary circumstances under which bees behave in the manner described. We can, therefore, only presume that there is some peculiarity about the hive in question with which our correspondent has not made us acquainted. The hive may be so placed that it does not get a fair share of the sun's rays.

Goonhilly.—Comb-foundation, if properly packed, will keep a long time. If through exposure to the atmosphere or other causes, it becomes dry or brittle, let it be dipped in lukewarm water, and its elasticity will be restored. We have no experience of mites in comb-foundation.

X.—Consult Abbott's *Leaflets* on driving and making artificial swarms. The slides in the Stewarton may be done without. Place a quilt on the top of the Stewarton bars, and when the supers are put on remove the quilt and insert the excluder zinc.

The Schedule of Prizes for the Ninth Great Exhibition of Bees and their Produce, Hives, &c., will be given in our next.

We exceedingly regret that, notwithstanding our increased number of pages, we are obliged to postpone till next month the History of the Devon and Exeter Bee-keepers' Association, the Report of the Annual Meeting of the Cornwall Bee-keepers' Association, Statistics of Imports of American Honey from M. Hoge & Co.; and communications from S. Simmins, T. Edmunds, Woodley, G. Childe, Colonel Pearson, T. B. Blow, C. Tite, A much-puzzled Fenman, John Hewitt, A Subscriber, and others.

We beg to call the attention of our Subscribers to the regulation which has been made for giving notice of the expiry of Subscriptions (see page 2). We trust this arrangement will meet with general approval.

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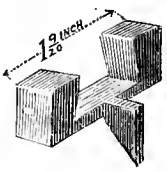

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Editorial, Notices, &c.

MARCH.

The report of the discussion upon the paper read by the Rev. W. E. Burkitt at the last Conversazione of the British Bee-keepers' Association will be found in the present number, and seems to indicate one important fact—viz. that the members of the Association have no wish to discountenance the use of the Straw Skep, as far as cottagers are concerned; but, on the contrary, are anxious to instruct the cottager how to make the most of the Skep, as a first step towards bee-keeping of a more advanced and more difficult character. Common sense could arrive at no other conclusion. It would be absurd to attempt to instruct a pupil in advanced mathematics unless he were fully grounded in the rules of elementary arithmetic, or to teach Harmony and Composition to one who had not mastered the simple rudiments of Music. A great deal of undeserved odium has fallen upon the British Bee-keepers' Association from a misunderstanding upon this point, and it is high time that this should be removed altogether. It is absurd to talk of 'retrograde movements,' 'backward steps,' 'returning to the beggarly elements,' and so forth; and we cannot think that Mr. Lemare could have been in earnest when at a General Meeting of the Association he advocated the burning of all the Straw Skeps in the kingdom. What the County Associations have to do is to instruct their cottagers in bee-keeping, not to induce them to buy new hives until they have learnt how to use those they already have. This they can very well leave to the manufacturers; and the Associations will do well to clear themselves from the suspicion of wishing to advertise or introduce what is called the bar-frame hive in exclusion to all others.

In the hands of the experienced bee-keeper, the moveable frame is, of course, an immense advantage, but you might as well make an ordinary cottager a present of a pianoforte as of a bar-frame hive unless you had previously educated him up to it. He would be as well able to use the one as the other.

Mr. Cowan presents a Sussex cottager with a bar-frame hive. It stands in the man's garden for two years, and not a bee passes into it. For three years we travelled past a frame-hive, going and returning from London on the North-Western Line, which stood in the garden of a cottager useless and tenantless. Such well-meant presents are, of course, a beginning at the wrong end. The first step is clearly to persuade the cottager to drive his bees when he takes his honey, instead of killing them. The second, to teach him how to collect his honey in a more inviting and attractive form by means of section-boxes placed on flat-topped straw skeps. When he has mastered these lessons it will be time to introduce to his notice the moveable frame and the advantages of comb foundation. We made our task more difficult than it really need be by putting the cart before the horse, and going on unto perfection before our pupils have mastered the first principles of bee-keeping.

Mr. Bartrum and Mr. Burkitt have both expressed some fear that they should be regarded as heretics for expressing their opinions clearly and boldly upon this point. They must be pleased to find that the members of the British Bee-keepers' Association have received their suggestions in such good part, and that the consensus of opinion (so far as it has been expressed) seems to be all in their favour.

THE BRITISH BEE JOURNAL: PROPOSED FORTNIGHTLY ISSUE.

In the month of May 1873, the first number of the *British Bee Journal* was issued; its object was 'the free discussion of all theories and systems in bee-culture, and of the relative merits of all hives and appurtenances, so that the truth with regard to them may be established.' Two months more will bring us to May 1883, and we shall have arrived at the close of the first decade of the *Journal*. Has it through these many years kept steadfastly in view the objects for which it was established? Has it accomplished the purpose of its mission? It has effectually broken up the fallow ground; it has scattered broadcast through the land the seeds of truth respecting bee-culture; it has raised a new industry; it has added a fresh pleasure and interest to the life of thousands; and it has brought a welcome addition to the incomes of many. What, further, it has achieved in the dissemination of information in bee-culture may be deduced from

the annual reports of the British and the various County Associations which are in active operation; and when we see the magnitude of the work performed; the numerous Associations which cover the kingdom as with a network; the zeal, energy, and intelligence, which pervade all classes in the development of apiculture as a science and an art, we feel that some agency has been abroad to educe such vast results. Whether the *Journal* has been that agency or not it does not become us to assert; but it may be conceded that to some degree it has been instrumental in helping onward the good work, and, therefore, we may perhaps be pardoned if, in glancing back on the condition of bee-keeping when the *Journal* was started and its position at the present day, we indulge in some feeling of complacency in regarding the retrospect.

But while we thus sincerely rejoice in considering the work that has been accomplished, the new features which have been evolved since the establishment of the *Journal*—chiefly the necessity of giving reports of the Associations and Bee Shows which have been held throughout the kingdom—have urged upon us the consideration of permanently enlarging its borders. We have endeavoured, by the increase in the number of its pages, the reduction of type, and the condensation of information, to keep abreast of our work; but too frequently have we been obliged to cast ourselves on the indulgence and sympathy of our kind contributors for delay in the appearance of their papers. The necessity, then, of a more frequent issue having been forced on our attention, we have had no slight difficulty in determining how frequent the issue should be. In this difficulty we have taken counsel with our readers, and have solicited their suggestions. We have received numerous replies; and though we have been urged by an intelligent and respectable minority to publish the *Journal* weekly—a suggestion with which at some future time we may feel it our duty to comply—for the present we have considered it desirable to adopt the *via media*, and to issue it once a fortnight, namely, on the 1st and the 15th of the month. The price of the *Journal* will in future be 3*d*. per copy, or, post free, 3½*d*.; and we propose that this arrangement shall come into operation from the 1st of May.

We trust that this change will prove acceptable to all our subscribers. It will have the effect of enabling us to give an increase of information, of bringing us into closer and more intimate contact with our readers, of replying to queries more frequently, and of more actively serving the secretaries of County Associations. Possibly, too, it may obviate a difficulty which the County Associations have met with in the circulation of the *Journal* among their members, by inducing those to whom they are lent to become subscribers instead of borrowers, and thus have at the close of the year a volume of facts on bee-keeping to which they can at all times readily refer. We cannot doubt that we shall continue to be favoured with the patronage of all our present subscribers; and as this is a new departure we venture to put forth a request that each of our present subscribers will make a strenuous effort to secure an addition to our present number. It has been said that the number of persons connected with the County Associations is about 5000, and there is a large body of bee-keepers who have not yet given in their adherence to these societies, or, there not being an Association in the district in which they reside, have not had an opportunity of joining one; surely amidst so large a constituency we can look forward with confidence to a large accession to our subscribers. And as the *Journal* has now attained a very respectable circulation, and that circulation is increasing steadily from month to month, we may with perfect honesty recommend it to all hive-makers, &c., as a favourable medium for bringing their appliances before the notice of bee-keepers.

We desire to avail ourselves of the present opportunity of tendering our sincere thanks to those contributors to whom we are so greatly indebted for help rendered us in the performance of our duties, and we trust we may continue to be favoured with their valuable assistance.—George Henderson, *Ealing*.

THE PRESENT SEASON.

Premature activity in the hives continues to make the bee-master anxious about the condition of his stocks. Shading and quiet have not succeeded in keeping the bees within their hives, and the almost total absence of flowers outside leaves them without fresh supplies to compensate for what has been consumed indoors.

Assuming that there is still enough food there, all that can be done is to remove (after dark) all dead bees from the floor-boards, narrow the entrances, and keep all as dark and quiet as possible. A large proportion of the bees that are tempted out by the mild weather and early morning sun will fail to find their way back; therefore, to strengthen them from flight, and to check spring-dwindling, a few cells of honey should be uncased occasionally. This is best done in the early evening, and near the top of the frames where the bees cluster thickest. If the promise of spring be fulfilled all will be well; but should vegetation be retarded, by frosts and cold winds, artificial feeding in small quantities must be kept up until the natural supply is obtained.

We wish we could put a screen over every hive to confine the bees to a short flight for cleansing purposes only.—D. S.

INSTITUTE OF AGRICULTURE.

This Institute has been established for the purpose of advancing technical instruction upon various sections of agricultural practice, and especially for bringing these advantages within the reach of the children of tenant farmers and others, who are at present precluded from such advantages by reason of the expense associated with education of this character. The following series of evening lectures will be delivered during the next session

in the theatre connected with the South Kensington Museum :—

March 5, Farm Seeds, by W. Carruthers, Esq., F.R.S.; Mar. 12, Land Drainage, by Professor Wrightson, F.C.S.; Mar. 19, Bees, by F. Cheshire, Esq. April 2, Grasses, by Professor Buckman, F.G.S., F.L.S.; April 9, Dairy Management, by Professor Sheldon; April 16, Nitrates, by R. Warington, Esq., F.C.S.; April 23, Farm Crops, by Professor Fream, B. Sc.; April 30, Farm Insects, by Miss Ormerod, F.M.S. May 7, Public Distribution of the Certificates of Merit.

Connected with the above a series of lectures will be given on 'Bee Management,' by F. Cheshire, Esq., and will extend from April 23 to May 4. The lectures will be delivered at 10.30 A.M. and at noon. The fee for this course will be one guinea.

NAMES AND ADDRESSES OF CANDIDATES EXAMINED AT SOUTH KENSINGTON, 1882.

Class 1.

C. Brown, 49 High Street, Dudley.
J. Stevens, 10 Noultrie Terrace, George Lane, Essex.
F. Cottman, 23 Western Road, Olney.
C. T. Overton, 7 New Street, Three Bridges, Sussex.
G. Stothard, Welwyn, Herts.
Rev. E. Davenport, Hungerford.
J. Lake, Cantley School, Doncaster.

Class 2.

G. St. John, Holley Cottage, Quinton, Birmingham.
J. Arnold, School House, East Molsey, Surrey.
J. Best, Witham Apiary, Boston.
R. H. Stonhill, Stewkley, Leighton Buzzard.
R. W. Davies, Manor Street, Braintree.
A. W. Rollins, Stourbridge.
J. Taylor, Coopers' Green, Buxted, Sussex.
R. J. Tomlin, 2 Albion Villas, Park Grove, Leytonstone.
T. C. Edmonds, Caistor, Yarmouth.

Class 3.

J. Alsford, Blandford, Dorset.
R. Atkin, Welwyn, Herts.
J. Perry, Banbury, Oxford.

We publish this list of competent Experts for the benefit of Secretaries of County Associations, as we have so many applications from them on the subject.

USEFUL HINTS.

Condition of the Apiary.—The weather during the past month has been highly detrimental to bees, the mild temperature keeping them on the alert and causing a large consumption of food, while the rain has prevented them taking advantage of the scant supply offered in the flowers and shrubs, or beating down those that were tempted to seek it. Many stocks apparently well supplied a short time since are now growing light, and the populations are much reduced, as is usual when bees become active, and yet from scantiness of income take only tardy steps toward the production of young bees. In the Southall apiary, and probably in many others, there is an abundance of crocuses, which would, if the weather permitted, afford sufficient stimulus to breeding for the present, and as the season advances the supply will increase, so that it is possible there will be no necessity for artificial aid; but in apiaries not well supplied from natural sources, and in any case when the weather prohibits foraging by the bees, they should be carefully tended, and by judicious feeding tided over the gulf that separates us from the blossoms in the orchards.

Judicious Feeding.—This term having been used, some may say, 'What constitutes judicious feeding?' and in reply, I would suggest that in early spring when, through mildness of the weather, bees have consumed the food that should have carried them through, and they are needy, a pint of syrup or other food given quickly at night so as not to produce continued excitement, and consequent breeding, would be judicious. Later on, when breeding is desirable, as in many instances is now the case, food should be given in such a way as to keep up the excitement that conduces thereto. The income derived by the bees from spring flowers is usually sufficient in itself when the weather is kindly disposed; but when otherwise, a second day should not be allowed to elapse without assistance being given proportionate to the condition of the respective colonies. It should always be borne in mind that breeding is, as a rule, proportionate to income, and that cessation of the latter will cause the former to be presently stayed. In summer, when honey is the chief consideration, food should be sparingly given to prevent the necessity for its consumption, and in autumn, after the honey harvest has been taken away, it is highly desirable that sufficient food should be given to enable the bees to store and seal over enough for winter sustenance before cold weather sets in. In winter feeding should never be necessary, and its necessity can only be the result of neglect, which is at all times highly injudicious.

Queenless Hives.—Spring examinations have in many apiaries discovered numerous cases of queenlessness, or of the presence of queens, that, having been reared after the autumnal sacrifice of drones, have not been fertilised, and in either case the hives are in poor condition. When unfertile queens are not causing waste of vital energy in the production of drones, fertile workers have too frequently assumed the royal prerogative and are doing mischief, and both are pests that should be destroyed. Unfertile queens can, of course, be caught and killed offhand, but fertile workers, not being different in appearance to other workers, cannot be distinguished unless found in the act of laying eggs. They are usually got rid of by removing the hive containing them to a new stand in the bee garden, so that the bees when on the wing shall leave them and return to a new hive on the old stand—full particulars of the means of doing which may be found on consulting former indexes.

The Drones of Unfertile Queens and Fertile Workers.—The great German authority, Dzierzon, in his work, *Rational Bee-keeping*, has no doubt but that the drones above alluded to are as perfect and as competent to fulfil the duties of male bees as are those brought to maturity under perfectly normal conditions, but I have taken leave to differ from him on the question. Those who have the misfortune to possess hives containing drones of the kind named may find it interesting to raise young queens early, and test the moot point. For this purpose, if after queens and fertile workers are destroyed combs (one to each hive) be given containing eggs and larvæ from fertile queens, young princesses will be forthcoming in about sixteen days, and there being no normal drones in existence if they (the princesses) become fertile queens, the question will favour Dzierzon's views, and my own will be severely shaken.

White Bees on Alighting Board.—These, as a rule, are the consequence of diminished income, the bees slaying their offspring to prevent the production of more consumers, the remedy is obvious.

Debris at Entrance of Hive.—When the bees arouse from their winter rest and have been breeding for a short time, they necessarily enlarge their nest, and clear out and polish the cells they have occasion to reoccupy, in doing which they throw down crumbs of comb, and often numerous pellets of dried pollen, a fact that need not alarm the bee-keeper, for it is a wholesome sign. But if in lieu of the former chips of comb be observed,

the hive should be examined as soon as opportunity offers, for a mouse may have taken up his abode within, and should be dislodged; or it will be found that the stock is being robbed by stranger bees. Dzierzon keeps mice out of his hives by driving nails into the floor-board at the entrance, thus forming a grating which keeps them out without hindering the bees in their operations. Robbing can be stayed by any of the means usually recommended, for which former indexes should be consulted.

Moisture at Entrances.—This is a favourable sign, supposing it to be the result of a high temperature within the hive caused by the bees' activity and breeding: but it may possibly arise from leaking food, a point which should be ascertained forthwith, and if so remedied, or robbery will be the natural consequence.

Ventilation.—When breeding is going on in a hive, even though the heat should be so great as to cause fanning at the entrance upward, ventilation should never be given. A moist atmosphere is necessary to the brood-nest, and undue heat and fanning should be corrected by the enlargement of entrances.

Artificial Pollen.—This may now be given on fine days; pea-flour is the best substitute for natural pollen, and bees may be taught to take it readily. It should be given as advised in the *Journal* for February, always remembering that it will be more craved for by the bees if at the same time there is an incoming of honey or syrup.

C. N. Abbott.

ABBOTT TESTIMONIAL FUND.

We have been desired to keep this Fund open for a short time longer. We readily comply with this request, so that all who may wish to take part in this mark of respect to Mr. Abbott may have the opportunity of doing so. The next meeting of the Committee of the British Bee-keepers' Association will be held on the 14th inst., on which day the Fund will be closed. The Committee will be requested to select a representative committee from the donors to the Fund, who will determine the nature of the testimonial. In the present number will be found in the biographical sketch of Mr. Abbott a history of the beginning of the *British Bee Journal*; and all who read it must admire his unswerving faith in his convictions, his patient perseverance, and his brave energy in accomplishing his purpose.

R. Symington ...	2	2	0	J. Hounsfield ...	0	5	0
Hon. and Rev. H. Bligh	1	1	0	H. Chenevix ...	0	5	0
				W. N. Griffin ...	0	5	0
H. M.	0	10	6	A. J. H. Wood ...	0	5	0
Chas. E. Fletcher	0	10	0	Capt. Keysham ...	0	5	0
J. Hedding	0	10	0	C. H. Haynes ...	0	5	0
H. L. Mills ...	0	10	0	H. Ellingham ...	0	5	0
Rev. F. T. Scott	0	10	0	S. Barge	0	5	0
D. Stewart, Esq.	0	10	0	J. A. Goodisson	0	5	0
F. Wheatley ...	0	10	0	V. Novitzky ...	0	2	6
Mrs. Davidson ...	0	5	0	A. Davis	0	2	6
W. Walker	0	5	0	J. Franks	0	2	6
A. Robinson ...	0	5	0	Mrs. C. C. James	0	2	6
J. L. Shadwell ...	0	5	0	W. T. Garnett ...	0	1	0
F. H. Lemare ...	0	5	0				

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

DISCUSSION

on the Rev. W. E. Burkitt's paper 'On the Best Way of Instructing Cottagers in the Art of Bee-keeping.'

Mr. T. W. Cowan, of Horsham, said he supposed that what Mr. Burkitt had related would apply to one of the most backward of counties, but he still thought some good could be done to cottagers. The county of Sussex, in which he resided, was always last to adopt anything new, and he supposed it would be the last to adopt modern bee-keeping. He had been trying for twelve years to induce cottagers to adopt improved systems of bee-keeping; but his success had not been as great as he should have liked, though it had been considerable. He found the cottagers had a greater affection for the old hives than for anything else; they, to a great degree, copied each other; and if the Association could get hold of a few intelligent men of the cottager class, the success in inculcating the principles of modern bee-keeping would be much greater than it had hitherto been. One cottager would help another, and each would copy the other. Mr. Cowan then related several amusing instances of bee-driving for cottagers, and stated that he once prevailed upon a very successful cottager to accept a frame-hive, but, though it stood for two years, not a bee had yet passed in. One way of meeting with success was by forming village clubs; and the County Associations, he thought, should endeavour to procure the services of a man more intelligent than his fellows to act as secretary. The club could meet once a-week, to have a quiet talk about bees, and then some good might be done. With regard to the question of cheaper literature, he thought the *Modern Bee-keeping* was issued at so reasonable a price, and contained so much information about the straw skep for 6*d.* that it would hardly be advisable just now to publish anything cheaper. He deprecated the idea of cottagers making their own frames, and should recommend them to purchase these, even if they made their own hives. As he had already remarked, the only way to make an improvement among these people was by example—by getting intelligent cottagers to take an interest in the matter, so that others might learn from them.

Mr. Jesse Garratt (Kent) expressed the opinion that no subject discussed here could be more useful than the present one, and stated that he should certainly be in favour of establishing classes for the education of the cottagers in this matter. He had been struck with some of the observations made by the lecturer; and he quite thought what they as an Association had to consider was, how they might best introduce this question so as to interest the working classes. Mr. Cowan's remarks with regard to Sussex being the last county to adopt anything new had struck him; but he thought the intelligence advanced in proportion to the wealth of a district. Sussex was not a wealthy county, and he owned that it, like Wiltshire, was not one of the foremost counties in the kingdom. The question had been raised, 'Are village clubs likely to benefit very much?' It would look reasonable that they should, but the Association had to look at these things through the medium of surrounding circumstances. Wiltshire had its distinct characteristics, and both it and Sussex were improving counties; but what might prove a successful experiment in one county might not succeed in another. He would suggest, as another means of educating the cottager, that lectures be given in selected districts as early in the spring as possible; and let it be announced at these lectures that an expert would follow in the course of a month to give practical lessons in bee-keeping. This, he believed, would prove one of the likeliest means by which success might be attained. If the Association could induce more local persons of note to give some encouragement to the villagers matters would progress much more satisfactorily, and every other means should be also taken advantage of. He did not say that any decided system would reach the cottager, because to a great extent he was a creature of instinct. As intelligence advanced he trusted that the cottager would take more interest in this matter, though, perhaps, that would not be altogether an advantage, because persons with small education sometimes made great mistakes, while the very ignorant escaped altogether. There was yet another thing to be considered. With a cottager time was money; his employment in the busy season was very laborious. For this reason, the cottager had a pre-

judice in favour of the skep, although, perhaps, there was not so much prejudice as once did exist. He (Mr. Garratt) was quite willing to encourage the cottager in the use of the skep. He was not at all surprised that those who were more closely identified with the British Bee-keepers' Association should advocate the use of the frame-hive chiefly. That was all very well, but in the details of county management they had to deal very tenderly with the cottager and his skeps, as they offended very much if they attempted to deprive him of them. If the cottagers by degrees could be got to acknowledge the advantage of the frame system the Association might then teach them gently to progress, and so increase their knowledge. A great deal might be done by leaflets, such as those which came from the pen of Mr. Abbott, and the movement might be made to accomplish great good.

Mr. F. Cheshire said there was no subject upon which he could feel so little disposed to say anything as upon this, but lest they should go away in a feeling of depression he should just like to say two or three words. From all that had fallen from previous speakers it was quite clear that there was a difficulty in reaching the cottager; but that seemed a general fault where they had to deal with an uneducated man—they could not reach him through logic. They could not explain to him the reasons for their conclusions; they could only help him by the honey, and by appealing to his pocket. They should look at the position of the country with regard to bee-keeping, and should ask, 'Have these cottagers as bee-keepers increased in numbers during the last ten or twelve years?' His impression was they had not; although there was a larger number of persons as bee-keepers than there was ten years ago, the particular class had not increased as bee-keepers. If cottagers as bee-keepers had decreased, he could not help thinking that the work of the Association had not been accomplished. The class which had been benefited was the first, a little above the other in the social scale, and education was spreading so rapidly that the Association might be looking forward to the still further decrease of the ignorant cottager class. He knew that there was still a great proportion of this class who could not read or write, and these resided in agricultural districts, where bee-keeping ought to be made the most profitable. He could not absolutely agree with all that had been said. There was an implied stricture passed upon scientific lectures. ('No.') If he made a mistake he made a mistake, but he understood it to be said that such lectures must naturally be dry. It did not appear to him to be so. No subject was lost by looking at it scientifically.

Mr. Haviland asked whether good could not be promoted by the Government encouraging schoolmasters to teach bee-keeping to the more advanced classes of boys? The Government gave grants for certain subjects, and it was very difficult to get those subjects for which grants were not given, taught, because, of course, schoolmasters preferred teaching those for which grants could be obtained.

Dr. Walker said that in Germany, where he had the pleasure of spending a short holiday some time ago, great interest seemed to be taken in the keeping of bees; but in Bavaria, though the word commenced with a 'B,' bee-keeping was as little followed as possible. This question of the cottager was an important one, because, as the lecturer had said, it was difficult to impress this class of people with the idea that one had their real interest at heart. Local Associations might be inaugurated, but even then the present difficulty remained how to teach with advantage the class, or the class immediately above. You must show them something that would benefit their pockets directly. With all due deference to Mr. Cheshire, he did not think that scientific lectures would do much good. Cottagers liked the skeps, because it was the smallest trouble. In reply to Mr. Haviland's question, Dr. Walker believed there was a Government grant which would include knowledge of bee-keeping as a special subject.

The Rev. T. Sissons said that the clergy had the reputation of being exceedingly unpractical, but he thought they had an answer to that in connexion with the art of bee-keeping as exemplified by their friend (the lecturer). There was not any reason for the Association to be greatly discouraged, if they would kindly bear in mind the many difficulties with which they had to contend. With regard to the cottagers, he was persuaded they must be shown how to procure hives at far less expense than now. He thought they might provide their own. He was not quite sure that Mr. Cowan was correct in supposing that the average cottager had not the ability to make frames; he (Mr. Sissons) thought he could make frames just as well as he could hives. He himself felt that he had no justification for going to great expense in bee-keeping; and the majority of his hives were of his own adaptation, and they had been made at very small expense. His experience of them was, that in many cases they were better than the purchased hive. He thought the cottagers might be a little more encouraged in this, and in the driving also. He had the highest admiration of the Association experts—Baldwin and Blow—a remarkable thing their names nearly all began in 'B.' He thought that the ability to drive came from experience. Homely lectures to cottagers, he thought, would do more good than scientific ones, but as he had just said, experience was the best teacher of all.

The Rev. J. H. Dixon said that their place of meeting might suggest to them one possible way of doing something to meet the admitted difficulty of inducing the labouring classes to adopt a better system of bee-keeping. Might not something be done by insisting more frequently and urgently upon the *humane* point of view? He knew of several cottagers whose consciences appeared to be far from comfortable in the practice of their barbarous custom of burning their bees in the honey harvest. It seemed to him that it would be a good thing if local Associations, in connexion with the Royal Society for the Prevention of Cruelty to Animals, could be more generally established, so that the rising generation might be leavened, to some extent, with more humane principles in reference to their treatment of the lower forms of animal life—such as small birds, reptiles, and insects. He knew of at least one association of this kind established in Hants, whose work seemed worthy of all imitation. If the children in schools were brought up with better notions of humanity (and it is in schools that such associations would find their best opportunities for work) there might, at all events, be some hope of improvement in the future, even if the present generation of cottage bee-keepers were hopeless. He was not quite sure that it was always advisable in giving practical instructions to cottagers in their own gardens for experts to dispense with the use of veil and gloves, or, at all events, the former, and so to appear to ignore the 'stinging' difficulty, for after all that was a difficulty. Old and experienced hands might not require protection; but he was afraid that it was sometimes rather discouraging to others to watch the proceedings of unveiled and ungloved operators. If it was necessary for them to do that (they might say) they must keep to their old system, whereas if it were shown in practice how everything might be done with perfect safety, even by the most timid bee-keeper, there might be more hope of the lesson producing its desired effect. He was very glad that reference had been made by previous speakers to the desirability of making instruction in bee-keeping a recognised part of our national education. He thought that it ought to be one of the objects of the committee of the B. B. K. A. to do all in their power to bring about the result. It was more desirable that boys should be taught some elementary knowledge in this useful branch of industry than that so much of their time should be spent in learning things which could never be of any use to them or to the country, either in a material or moral

point of view. Why should not boys receive instruction in domestic arts as well as girls? Schoolmasters should be encouraged to take the matter up and become practical bee-keepers, and also inspectors.

Mr. Cowan proposed a vote of thanks to Mr. Burkitt, the lecturer, and this Mr. F. Cheshire seconded.

The Chairman, in putting the motion, referred to the fact that Mr. Burkitt had shown a flat-topped hive, but it must be remembered that the cost of that was more than the cost of the skep. The question of the cost was a consideration with the cottager.

The motion was unanimously carried, and Mr. Burkitt having briefly replied, a vote of thanks to the Chairman concluded the proceedings.

The hive exhibited by Mr. Burkitt was an ordinary flat-topped skep, over which is fitted a box of ½ deal nine inches deep, coming down five inches to protect the skep. On the floor of this case (which is four inches from the top) is a crate of eighteen 1-lb. sections. The space between the sides of the crate and outer case being packed with shavings, chaff, or cork-dust, and a chaff-bag covers the top over the quilt and keeps all snug and warm. This cover may also be used on the old dome-shaped skeps, by cutting a hole in the top, and filling the space left by the curve of the skep with shavings. A French nail, run through the lower edges of the case into the skep, keeps all steady. The idea was taken from Mr. Blow's 'super crate for skeps;' Mr. Burkitt's, however, is double-cased, and affords more complete protection to the skep, but, of course, it costs more than Mr. Blow's, the price being *5s. 6d.*, and that of the skep *2s.*

Letter from the Rev. W. E. Burkitt.

Some of my remarks in the paper I read on January 24th seem to have been somewhat misunderstood. '*Disappointment*,' or a feeling of '*discouragement*,' at the slow advance made in bee-keeping by cottagers, never once entered my head (that is not at all in my line). I only wished to point out the difficulties one has to contend with, and to urge most strongly the necessity of *ocular demonstration*—plain language and simple hives to *begin* with. I really believe that whenever we are again blessed with favourable seasons many converts will declare themselves who have hitherto been discouraged by the weather from attempting anything new.—W. E. Burkitt, *Hon. Sec. W. B. K. A.*

BRITISH BEE-KEEPERS' ASSOCIATION.

Next committee meeting, Wednesday, March 14th.

Next quarterly meeting of county representatives, Wednesday, April 25th. Notices of motions for this meeting must be sent to the assistant secretary not later than Wednesday, April 18th.

The Rev. H. R. Peel will read a paper at the Conversazione after the next Quarterly Conference with the representatives of County Associations on the question, 'Who *is* the *bonâ fide* Cottager?'

Annual Meeting.

The Annual Meeting was held in the Board Room of the Royal Society for the Prevention of Cruelty to Animals, 105 Jermyn Street, on Thursday, February 15th. The chair was taken by the President of the Association, the Baroness Burdett-Coutts. There was a large attendance of members, including several representatives of County Associations. Among the audience were Mrs. White Cooper, and other ladies; Rev. H. R. Peel (hon. sec.), Revs. N. Andrewes, G. Raynor, Hon. and Rev. H. Bligh, Revs. F. G. Jenyns, W. E. Burkitt, J. H. Dixon, F. T. Scott; Captain Campbell, H. Jonas, W. A. Kirchner, D. Stewart, R. R. Godfrey, Sir Kingsmill Grove Key, J. Garratt, H. Bevir, Dr. Walker, T. W. Cowan, J. M. Hooker, F. H. Lemare, &c.

The Committee in their report state that they are pleased to announce that a large increase in the number of members has taken place during the year. On December the 31st, 1881, the Association numbered 297 members; during the past year twenty-eight have withdrawn; 145 new members have been enrolled; making the present total 414. The list of new members for 1882 includes the Earl of Derby, who has become a life-member.

The Committee notice with great satisfaction the success which has attended their efforts in the extension of the Association's work, more especially in the formation of County Bee-keepers' Associations in affiliation with the Central Society. During the past year such Associations have been established in Bedfordshire, Buckinghamshire, Carmarthenshire, Hampshire, Herefordshire, Huntingdonshire, Lancashire and Cheshire, Northamptonshire, Oxfordshire, Somersetshire, Worcestershire, and Yorkshire; steps are also being taken towards the formation of Associations in other counties. There are now thirty-two County Associations in affiliation with the Central Society. A large number of these Associations have bee-tents, in which displays are made at the several horticultural and other shows which are periodically held in each county. Some of these Associations have also an appointed expert, who visits at stated periods the members and cottagers residing within the county, for the purpose of giving them instruction in bee management. The employment of an expert by each County Association for periodical visitation is of great importance. In order that qualified experts may be forthcoming, the British Bee-keepers' Association have arranged to hold yearly examinations of candidates, and to give first, second, and third class certificates, according to the proficiency of the candidate. The first examination of candidates took place at South Kensington on August 7 and 8; the examination was conducted by the Hon. and Rev. H. Bligh, Thomas W. Cowan, Esq., and the Rev. George Raynor. The following eight candidates were awarded first-class certificates, viz.:—Mr. G. H. Baines, Tring, Herts; Mr. C. Brown, High Street, Dudley; Mr. F. Cottman, Olney, Bucks; Rev. E. Davenport, Hungerford, Wilts; Mr. J. Lake, Doncaster; Mr. C. T. Overton, Three Bridges, Sussex; Mr. J. Stevens, George Lane, Essex; Mr. G. Stothard, Welwyn, Herts; besides whom there were nine second-class and three third-class. It is anticipated that an increased knowledge of bee-keeping will be disseminated in many of the rural districts of England as a result of these examinations.

County shows of bees, hives, honey, &c., have been held in the several counties, at which silver and bronze medals and certificates have been awarded, as follows:—Berks and Bucks, now Berkshire; Breconshire; Cornwall; Derbyshire; Devonshire; Dorset; East of Scotland; Essex; Herefordshire; Hertfordshire; Kent; Leicestershire; Lincolnshire; Norfolk; Shropshire; Suffolk; Warwickshire; Wiltshire.

During the past year, bee-tents have been in great demand; and, although the Association has now three tents in use, the Committee has been unable to meet the applications of several Horticultural Societies. The following towns have been visited:—Witney, in Oxfordshire; Matlock Bath and Quarndon, in Derbyshire; Southampton and Romsey, in Hampshire; East Cowes, in the Isle of Wight; Frenchay, in Gloucestershire; Long Buckby and Northampton, in Northamptonshire; Sandy, in Bedfordshire; and Saffron Walden, in Essex. Upon reference to the balance-sheet it will be observed that the profits derived from the bee-tents are not large, the tents having been extensively engaged on behalf of the county Associations.

Three *conversaziones* have been held during the year, at which papers have been read, viz.—On Wednesday, January 18th, by the Rev. George Raynor; subject, 'Beehives and Houses.' On Wednesday, April 12th, by Mr. Thomas B. Blow; subject, 'A Bee-keeper's Experiences in the East.' On Wednesday, October 18th, by G. D. Haviland, Esq.; subject, 'The Social Instincts of Bees,

their Origin by Natural Selection.' These papers have been printed, and copies have been forwarded to each member of the Association.

The Committee are glad to report that the demand for the various books and pamphlets published by the Association, continues to increase. New editions of *The Ligurian Queen Bee: her introduction to Alien Stocks, and the best means of Pure Propagation*, and *Bee Hives and Houses*, are in course of preparation. The third edition of *Modern Bee-keeping* has nearly been disposed of; and the fourth edition of this work, considerably enlarged and improved, will be announced shortly.

The Library.—A large addition of books on bee-culture have been added during the past year. Through the kind assistance of the President of the Association, the Committee have been enabled to purchase a large number of valuable works, which were collected by the late J. G. Desborough, Esq. The number of books at present is 240; and they have been in much demand during the year, more especially recent American works on apiculture.

Honey Market.—Mr. S. J. Baldwin, the appointed agent for the sale of members' honey, reports as follows:—'During the past year my services have been in but little request by the members for assistance in the disposal of their honey. I have, however, been put to a considerable amount of trouble and correspondence, owing to the unsaleable way in which samples were sent; pill-boxes, scent and gum-bottles, mustard-tins, and other articles being used for extracted or run honey, none of which were sufficiently attractive for sale.'

A special Sub-Committee, consisting of the Rev. E. Bartrum, the Hon. and Rev. H. Bligh, and D. Stewart, Esq., has been appointed to superintend the Honey Market. Special printed forms are now being prepared, and members of the British and of the Affiliated Associations having honey for sale, should make application to the Assistant Secretary, Mr. J. Huckle, King's Langley, Herts, for the prescribed form to be used for this purpose.

The Annual Show of the Association was held in the gardens of the Royal Horticultural Society, South Kensington, on August 3, 4, 5, 7, and 8. The exhibits of hives and bee-keeping appliances were more numerous than at any previous exhibition held since the formation of the Association.

Owing to the inclement state of the weather which prevailed during the honey-gathering season, the exhibits in the honey department were considerably less than in the preceding year. Mr. R. Thorpe, of Evedon, and Mr. J. H. Brown, of Swineshead, near Spalding, Lincolnshire, sent large consignments of comb honey in sections. The Committee notice with much pleasure that many farmers residing in various parts of the United Kingdom have added bee-keeping to their ordinary farming operations, and in some instances on a scale to justify the employment of an assistant for the apiary alone.

The Council of the Royal Agricultural Society of England, recognising the advantages to be derived from bee-keeping in connexion with agriculture, resolved this year to increase their annual grant to the British Bee-keepers' Association. The Committee were thereby enabled to extend their prize list for bees, hives, honey, &c., at the Royal Agricultural Show, held at Reading, in July last. Large entries were made of hives and appliances; many thousands of persons visited the bee department, and evinced much interest in the addresses and manipulations given in the bee-tent during the continuance of the show.

An exhibition of bees, hives, honey, &c., was also held in connexion with the Bath and West of England Agricultural Show at Cardiff, and was equally successful with the Reading exhibition. This Show has been productive of much good to the bee-keeping cause in South Wales. Bee-keepers on the more humane principle are becoming more numerous, and County Associations are being established. A course of lectures will be delivered in Brecknockshire, Carmarthenshire, and Glamorganshire, during the spring months of 1883. The Committee are greatly indebted to the Hon. and Rev. J. T. Boscawen, and Mr. A. Pettigrew, of the Castle Gardens, Cardiff, for their kind and valuable assistance in promoting the success of the Cardiff Show.

The Association was represented at the Annual Show of the British Dairy Farmers' Associaton, held at the Agricultural Hall, Islington, on October 3 and following days.

The Council of the Royal Agricultural Society have again promised a grant of 30*l.*, to enable the Committee of the British Bee-keepers' Association to offer prizes for bees, hives, honey, &c., at the Royal Agricultural Show, to be held at York, in July next.

The Committee have instituted inquiries with the view to holding the Association's Annual Show of 1883 at an earlier date, and in a more central part of London than South Kensington. A more extended prize list has been arranged, to give greater encouragement to cottagers and artisans; it will be found published in the March number of the *British Bee Journal*.

In conclusion, the Committee would urge the present members to make the Association known among their friends and residents in their respective neighbourhoods. As the Committee receive increased support, it will enable them to extend their operations into other counties, where as yet no County Bee-keepers' Association has been established, and where bee-keeping upon the humane and profitable system is scarcely understood. The aid given to lecturing tours in counties during the past year has been much appreciated, and has given a considerable impulse to bee-keeping in those counties where such tours have been carried out. It would be very desirable to increase the grant for this purpose, and also to make grants towards the employment of certificated experts by affiliated associations. It would also be of great advantage to the Association if one or two rooms could be hired in some central position for the purpose of the library and for meetings, which might also serve as a club for bee-keepers on their visits to London; but this cannot be done without a considerable increase in the subscriptions to the parent association.

The President moved—'That the Report and Balance-sheet issued for the year 1882 be received and adopted, with a vote of thanks to Mr. Kirchner, the auditor.' Mr. Kirchner acknowledged the compliment paid to him.

Rev. W. E. Burkitt moved—'That votes of thanks be given to the retiring Officers and Committee,' which was seconded by Sir Grove Kingsmill Key.

Mr. T. W. Cowan proposed a vote of thanks to the Council of the Royal Society for the Prevention of Cruelty to Animals for the gratuitous use of their Board Room for committee and other meetings, and that a donation of one guinea be subscribed to the Society in acknowledgment of the kindness of the Council. The Rev. G. Raynor seconded the resolution.

Rev. N. Andrewes moved the election of President, Vice-Presidents, Auditor, Librarian, and Secretary for the year 1883, in accordance with Rule 8. Mr. D. Stewart seconded the motion, and alluded to the great devotion of Mr. Peel to the cause of the Association.

The Rev. H. R. Peel said that he should be very glad to continue his duties another year. He congratulated them on the present condition of the Association, which was fulfilling the objects for which it started, namely, to improve the condition of the agricultural labourers throughout the kingdom, and to show humanity to the most industrious of all labourers, the honey-bee. He thought there could not be a better method of instructing labourers in bee-keeping than by forming County Associations, each of which could diffuse knowledge on the subject over a large area. In May 1878 there were only three County Associations, while at the present time there were thirty-one, which were all branches of the

British Bee-keepers' Association, being affiliated to it. It was also very desirable that they should have head-quarters of their own. Although they were much indebted to the Royal Society for Prevention of Cruelty to Animals, still their library was enlarging to such an extent that there was now quite insufficient room for it in the Society's book-case. He thought these head-quarters might be a sort of Bee-keepers' Club, where the members could hold their regular meetings, and find one another when in London. A gentleman has offered 5*l.* towards the development of this object.

The Assistant Secretary having read the results of the election of the Committee for 1883, the Rev. H. R. Peel proposed, and Mr. Huckle seconded, 'a vote of thanks to Mr. Willard for his services as scrutineer of the voting papers.' The Committee of 1882 were re-elected.

The Rev. H. R. Peel stated that it had hitherto been the practice to ask the Presidents of County Associations to distribute the prizes at the annual Shows in order to cement more closely the connexion between the County Associations and the Central Association. For the last two years the Princess Christian has been asked to give away the prizes as President of the Berkshire Association, but on each occasion she was prevented from doing so. It would be well if the County Associations could be taken in the order of their formation—that is to say, the president of each branch, in rotation, commencing with the oldest one, should be invited, from year to year, to distribute the prizes at the Annual Shows. The Lincolnshire Association was started in 1876, and was the oldest one. He, therefore, begged to move that the president thereof, the Bishop Suffragan of Nottingham, be invited to distribute the prizes at the Annual Show of 1883.

Mr. R. R. Godfrey, honorary secretary of the Lincolnshire Association, said that from the interest the Bishop took in the movement there was no doubt he would be very happy to fulfil the duty.

The Rev. W. E. Burkitt moved—'That it is desirable for the British Bee-keepers' Association to publish a *Penny Guide* to the management of bees in straw skeps.' He said that probably this resolution would be considered a retrograde step, but he did not think it was so. From his observation among cottagers, he had found that very few ever succeeded with the bar-frame hive, which they did not know how to manage. It was hopeless to expect to get rid of the skeps all at once, and therefore the next best thing was to get the greatest value they could out of them. The present edition of *Modern Bee-keeping* was too long and too expensive for the use of cottagers.

Captain Campbell seconded the motion.

Mr. T. Cowan opposed the motion, saying that nothing should be done to encourage the use of skeps. The object of the Association was to push the bar-frame hive wherever they could. He recommended that the third and enlarged edition of *Modern Bee-keeping* should be divided into six parts, each part being published separately at a small cost. In this book there was a short chapter on skeps.

The Rev. C. F. G. Jenyns also opposed the motion. He recommended that bar-frame hives should be given away at shows as prizes instead of money, so as to encourage the use of them among cottagers.

Mr. J. Garratt supported the motion, saying that he had known many instances of failure on the part of cottagers who owned bar-frame hives. He thought the cottager ought to be instructed how to turn to account the best means at his disposal. A short preface might be written to the pamphlet, which would quite clear the Association from any imputation of recommending skeps.

The Rev. H. R. Peel agreed with the proposal of Mr. Cowan, namely, to publish *Modern Bee-keeping* in six separate parts.

The discussion was continued by Mr. T. B. Blow and Dr. G. Walker, who recommended that cottagers should be properly instructed in the use of straw skeps, to which there had been many improvements of late; and by Mr. Lemare, who opposed the motion in strong terms, saying that skeps were only sold for the benefit of hive-makers.

It was then proposed to amend the resolution as follows:—'That it is desirable for the British Bee-keepers' Association to publish a Penny Guide to the management of bees for the special use of cottagers;' but this amendment not being accepted, the discussion was continued by Mr. H. Bevir, who believed that skeps would remain the hive of the cottager for a long time to come, that the bar-frame hive was always a failure unless some person skilled in its use were ready at hand to assist the cottager. He therefore thought the best way to meet the difficulty was by publishing a pamphlet as suggested.

After some remarks from the Rev. H. R. Peel and Mr. S. G. Baldwin, the following amendment was proposed by the Rev. C. F. G. Jenyns, and seconded by Dr. Walker, and carried unanimously:—'That it is desirable for the British Bee-keepers' Association to publish Penny Pamphlets on the management of bees for the special use of cottagers, including one on the most profitable use of straw skeps.' The amendment was afterwards put to the meeting as a substantive motion, and again carried *nem. con.*

The following resolution was moved by the Rev. H. R. Peel, and seconded by Mr. H. Jonas, and carried unanimously:—'That it is desirable that the British Bee-keepers' Association endeavour to procure from the various railway companies a reduction of passenger fares and rates of carriage for goods to and from the several Bee Shows.'

The Assistant-Secretary stated that he had communicated with the various railway companies, and the matter would be taken into consideration at a meeting of railway managers to be held in April next.

A vote of thanks to the Baroness for presiding was proposed and carried unanimously.

The President returned thanks for her re-election to a position which she occupied with so much pleasure to herself. She said that it was very satisfactory to watch year after year the progress the institution was making, and to see the new branches of it springing up all over the country from time to time.

The first meeting of the newly-elected committee was held at 105 Jermyn Street, on Wednesday, Feb. 21st. Present—Rev. E. Bartrum, Hon. and Rev. H. Bligh, Captain Campbell, T. W. Cowan, J. M. Hooker, H. Jonas, D. Stewart, W. O'B. Glennie (treasurer), and Rev. H. R. Peel (hon. secretary).

Mr. Cowan was unanimously elected chairman of the committee for the ensuing year. In the event of Mr. Cowan's absence from any committee meeting, the chair to be taken by the member then present who obtained the largest number of votes at the election.

The minutes of the last committee meeting were read, confirmed, and signed. The balance-sheet for the month ending January 31st was also read, showing a balance in hand of 40*l.* 3*s.* 6*d.*

The honorary secretary reported that the application for a reduction in the rates of carriage for goods, and fares of members to and from the several bee shows, would be taken into consideration at a conference of the several railway superintendents, to be held towards the close of April. Resolved—'That application be made to the railway conference to receive a deputation of members of the British Bee-keepers' Association, and of the several county associations, in support of the request for a reduction of rates of carriage for goods and fares of members to and from the several bee shows, and that the secretaries of the several county associations be asked to join in this memorial, and to attend with the deputation on the day appointed for the conference.'

Resolved—'That the sub-committee appointed to finally revise the fourth edition of *Modern Bee-keeping*, do prepare the MS. for the press as early as possible; to order such further woodcuts as may be requisite to illustrate the work, and to compile such extracts from the revised edition as may enable the committee to carry out the resolution passed at the annual general meeting for the publication of Penny Pamphlets for the special use of cottagers.'

DONATIONS TO PRIZE FUND.

H. Bostock ...	2	2	0	G. Walker	0	16	0
H. Jonas	2	2	0	G. Allen	0	5	0
Neighbour & Son	1	1	0	F. Search	0	5	0
H. G. Morris ...	1	1	0	Rev. T. Milles ...	0	5	0
Rev. G. Raynor...	1	1	0	C. Wade	0	5	0
W. Bassano ...	1	0	0	J. Rodham ...	0	2	6
C. H. Hodgson ...	0	16	0				

COUNTY ASSOCIATIONS.

BEDFORDSHIRE BEE-KEEPERS' ASSOCIATION.

A series of meetings have been held in various towns in Bedfordshire to further the interests of the newly-formed Bedfordshire Bee-keepers' Association.

Hon. Mrs. Lowther, of Ampthill Park, has been the prime mover in the organization of the society; and though bee-keeping is far behind in the county, and the country people still plodding in the ways their fathers went, yet from the energetic way in which the movement is being worked by many in various parts of the county, we think that this reproach is in a fair way of being removed.

On Tuesday, January 23, a meeting was held in the schoolroom at Ampthill. Lord Charles Russell in the chair. There was a large gathering: amongst whom we noticed Rev. Sydney Gillam, Rev. E. Bowling, Rev. Pryce Jones, Rev. H. Cobbe, Rev. J. Wilmot, Rev. T. Ashpital, Dr. Holland, Mr. Slinn, Mr. Quelch, Mr. Seabrook, Miss Morris, and Mr. and Miss Brown. His lordship having touched upon the many advantages to be obtained by keeping bees, called upon Mr. T. B. Blow to give them some practical explanations. After the lecture many questions were asked, and several present announced their intention of joining the society. On Wednesday, January 24, a meeting was held in the school at Aspley. Rev. Mr. Maltby in the chair. Owing to the heavy storm raging the audience was small, but consisted almost wholly of bee-keepers, who were anxious for information.

On Thursday, January 25, a meeting was held in St. Cuthbert's School, Bedford. There was a good attendance, and evidently many advanced bee-keepers reside around Bedford. The success of the meeting was greatly due to the exertions of Mr. Carter, a most enthusiastic and advanced bee-keeper. Miss Maccan, of Elstow, is local secretary.

During the daytime many country bee-keepers were looked up, their bees examined, and advice given them.

The Association numbers among its members most of the influential residents in the county, the president being Earl Cowper; vice-presidents, Lord Charles Russell, Mr. Magniac, Hon. W. Lowther, M.P., and Colonel Stuart.

We would remind members that the Agricultural Show for the county will be held in Bedford on July 19, Thursday, when their very best exhibits of comb and run honey should be ready.

BERKS AND BUCKS.

An adjourned general meeting of the members of this Association was held at the Albert Institute, Windsor, on Saturday, February 3rd; there was a fair attendance of members. W. H. Harris, Esq., was voted to the chair. The Honorary Secretary (G. P. Cartland, Esq.) reported that in accordance with the resolution passed at the annual general meeting, he had communicated with the members of the Association in respect to the proposal for dissolving the Association and establishing separate Associations for both counties.

A large number of letters were read from members residing both in Berkshire and Buckinghamshire, expressing themselves in favour of an Association being formed for each county. Several members present announced that a large number of gentlemen had promised to support an Association, providing its labours were confined to their own county. The following resolution was passed unanimously, 'That this Association be divided into two separate County Associations.' The rules of the Association were amended as suitable for Berkshire.

The Rev. H. R. Peel announced that Mr. J. B. Graves, of Stony Stratford, had kindly promised to act as secretary of the Buckinghamshire Association. It was resolved to open a special fund to enable the committee of the Berkshire Association to send round an expert to visit the members during the ensuing spring to give them instruction in the management of their bees. Mr. G. P. Cartland, Hon. Sec., Victoria Street, Windsor, will be glad to receive donations for this purpose.

BUCKINGHAMSHIRE ASSOCIATION.

Active steps are now being taken for the formation of this Association. Meetings have been arranged for Aylesbury, March 1st; Princes Risborough, on March 2nd, at three in the afternoon; at High Wycombe, on March 2nd, at seven in the evening; at Slough, on March 3rd. Meetings in other parts of the county are also in course of arrangement.

CARMARTHENSHIRE BEE-KEEPERS' ASSOCIATION.

The first annual general meeting of the members of this Association will be held at the Cawdor Arms Hotel, Llandilo, on Monday, the 5th of March, for the purpose of electing a committee for the year, considering the rules as proposed by the provisional committee, and for discussing questions regarding the government of the Association.

CORNWALL BEE-KEEPERS' ASSOCIATION.

The annual meeting of the Cornwall Bee-keepers' Association was held at the Town Hall, Truro, on Wednesday, January 17. Mr. J. Hendy occupied the chair; there were also present the Revs. A. H. Malan, W. Rogers, A. R. Tomlinson, Mrs. Hockin (Flushing), Mrs. May, Messrs. G. E. George, G. Gradidge, and C. Kent, honorary secretary.

The committee, in presenting their first annual report, congratulated the members upon the success of the movement for the promotion of the more humane treatment of the honey bee in the county. From a small band of seven who met in the Town Hall, Truro, in October 1881, the number of members had now increased to 134 with annual subscriptions amounting to 37*l.* 9*s.* The total income had been 79*l.* 9*s.* 2*d.*, and there were now outstanding bills amounting to 23*l.* 4*s.*; in addition to 1*l.* 1*s.* due to the treasurer and secretary. The expenditure had thus exceeded the income by 24*l.* 5*s.*; but the committee reminded the members that there were many expenses incident to the institution of the Association which would

not occur during the year just commenced, and they had every confidence that they would fully recover their ground ere the time arrived for presenting another report. They begged to thank the Rev. H. R. Peel, honorary secretary of the British Bee-keepers' Association, for the valuable assistance rendered in starting the Cornish society; and also, among others, the secretaries and committee of the Devon and Exeter Bee-keepers' Association. Having referred to the able lectures delivered under the auspices of the Cornwall Bee-keepers' Association by the Rev. J. G. Dangar, M.A., the Rev. C. R. Sowell, St. Goran; and Mr. C. Kent (honorary secretary), the report spoke of the exhibitions held by the society at Launceston, Liskeard, St. Austell, and St. Columb, by means of which, the committee believed, operations in the art of bee-culture would be largely extended in the county. The first annual exhibition was held at Truro in August. In connexion with the Polytechnic Society's Jubilee at Falmouth a series of manipulations were given, and also a lecture by Mr. T. B. Blow. The committee also recorded their great indebtedness to Mr. C. Kent for his ability and energy as honorary secretary. In conclusion, the committee urged each member to use his best endeavours to increase the number of subscribers. It was only by these means that the Association could expect to efficiently carry out its objects, and extend its influence into every part of the county.

On the motion of the Rev. W. Rogers, seconded by the Rev. A. H. Malan, the report was unanimously adopted, together with the statement of accounts.

The Rev. A. H. Malan proposed the re-election of Earl Mount Edgcumbe as president. This was seconded by the Rev. W. Rogers, and unanimously agreed to.

The Rev. A. R. Tomlinson proposed that the following be vice-presidents:—The Hon. and Rev. J. Townshend Boscawen, Sir James M'Garel-Hogg, M.P., Lord Robartes, Mr. T. Martin (St. Austell), Rev. A. H. Malan, Sir John St. Aubyn, M.P., Earl St. Germans, Mr. A. Pendarves Vivian, M.P.

Mr. Gradidge seconded the motion, which was carried.

On the motion of the Rev. A. H. Malan, seconded by Mr. George, the following were elected the committee:—Messrs. A. Bailey (Liskeard), W. K. Baker (Towednack), J. Branwell, Jun. (Penzance), G. H. Ghilcott (Truro), G. Dixon (Truro), G. H. Fox (Falmouth), Hon. Mrs. Gilbert (Trelissick), W. N. Griffin (Alphington, Exeter), J. Hendy (Grampound Road), Mrs. J. W. Hockin (Flushing), J. S. Jago (Mevagissey), Rev. J. A. Kemp (St. Breward), W. Prockter (Launceston), T. R. Polwhele (Truro), Mrs. Polwhele, Rev. Stanhope Rashleigh (St. Wenn), Rev. W. Rogers (Mawnan), Rev. C. R. Sowell (St. Goran), Miss Symonds (Hatt), Rev. J. Symonds (Baldhu), Mrs. Tom (Truro), Rev. A. R. Tomlinson (St. Michael Penkivel), J. W. Wilkinson (Perranarworthal), J. Williams (Scorrier). Mr. A. P. Nix was re-elected treasurer, and Mr. C. Kent, honorary secretary.

Votes of thanks to the Mayor for the use of the room, and to Mr. Hendy for presiding, terminated the proceedings.

COUNTY ARMAGH BEE-KEEPERS' ASSOCIATION.

On Thursday, Feb. 1, at half-past twelve o'clock, the second annual meeting of the above Association was held in the Town Hall, Lurgan. Among the members present were the Baroness Von Stieglitz and Miss Von Stieglitz, James Ussher, Esq.; George Greer, Esq., J.P.; Miss Fforde and Miss Rankin, the Rev. H. W. Lett, and Messrs. John M'Caughey, John Turtle, William Turtle, John Sinnamon, and William Lonsdale. The chair was taken by James Ussher, Esq.

The Secretary (George Greer, Esq., J.P.) then read the report. The second year of the existence of the Society had been marked by weather most unfavourable for bee-keeping, and consequently honey-making, except in a few cases, had not produced as good results as might have been expected; but, notwithstanding the opposition of the elements, the work of the Association had not only held its own, but made vigorous strides during the past twelve months. The number of the members of the Association had been increased by twenty-one, and five copies of the *Bee Journal* were circulated regularly. The Association had held their annual show, and gave demonstrations at six public gatherings, three of which were new ground. In addition to this a large number of correspondents communicated with the secretaries for varied information regarding bees and bee-keeping. Demonstrations had been given at the annual show of the North-East Agricultural Society, where a space had been set apart for their use by the kindness of that Society; at Banbridge, for the first time, through the kindness of the local Farming Society; at the Newry Cattle Show; at the Portadown Dog Show; at the Narrow Water Cottage Flower Show. The annual show of the Association had been held under the most unfavourable circumstances in the Portadown markets, granted for the purpose by the Portadown Town Commissioners. The weather was cold, wet, and comparatively few persons were present.

The statement of accounts showed a large deficit, but the bee-tent was nearly paid for, and its earnings would soon add to their receipts. Sufficient attention had not been paid to their finances, but doubtless their new treasurer, if aided by reasonably fine weather, would soon be able to show a balance in favour of the Association.

The report was, on the motion of Mr. M'Caughey, adopted, and ordered to be printed and circulated.

The meeting then proceeded to the election of officers. The following were elected:—Patron, Lord Lurgan; patroness, the Baroness Von Stieglitz; president, Major Hall; vice-presidents, Peter Quinn, Esq., J.P.; Sir William Verner, Maxwell C. Close, M.P.; John Hancock, Esq., J.P.; Viscount Mandeville, James N. Richardson, M.P.; R. G. M'Crum, Esq., J.P.; St. John T. Blacker, Esq., D.L.; Colonel Forde, D.L.; secretaries, George Greer, Esq., J.P., Woodville, Lurgan; the Rev. H. W. Lett, Ardmore, Lurgan; treasurer, Erskine Quinn, Esq., The Agency, Newry.

The members present then proceeded to ballot for a new and complete bar-frame hive, with wide shoulder ends, which was won by W. M'Caughey.

DERBYSHIRE BEE-KEEPERS' ASSOCIATION.

The annual meeting of this Association was held in the Guildhall, Derby, on Friday evening, 26th January. Dr. Ogle was called upon to preside; and there was a fair attendance, including the Rev. G. Shipton, of Brampton, Chesterfield; the Rev. Stafford O'Brien, Dr. Copestake, Mr. W. Handby, Mr. Goodwin, Mr. H. V. Edwards (hon. secretary), &c.

The annual report stated that in spite of a season adverse to the production of even a moderate yield of honey, the progress of the Association had been on the whole satisfactory. The number of members was upwards of 120. As regarded financial matters, the committee had to report that the receipts amounted to 72*l.* 10*s.* 7*d.*, and disbursements to 73*l.* 4*s.* 4*d.*, leaving a deficiency of 13*s.* 9*d.* More ample means would have proved highly useful. The services of an expert for the past year to visit each member had been beyond the reach of the exchequer; a bee-tent had been equally unattainable; but a number of lectures had been given, and more might advantageously be delivered if funds would permit.

On the motion of the Rev. Mr. Shipton, seconded by Mr. Goodwin, the report and balance-sheet were adopted, a hope being expressed that the subscriptions next year would be increased.

On the proposition of Dr. Copestake, the Duke of Devonshire was re-elected president; and the noblemen and gentlemen who had acted as vice-presidents were again unanimously re-elected in that capacity. On the motion of Mr. Goodwin, seconded by Mr. Holbrook, Dr. Copestake was re-elected treasurer; Mr. H. V. Edwards, honorary secretary; while the district secretaries, the Rev. H. M. Stallybrass (Wirksworth), the Rev. G. Shipton and Mr. Joseph Birtles (East Derbyshire), were likewise re-elected. Mr. W. C. Owen, the Burton-on-Trent district secretary, had resigned, and his place was filled by Mr. Daniel.

The committee was constituted as follows:—Rev. J. Wadham, Rev. Stafford O'Brien, Rev. J. Hughes (Chellaston), Mr. F. Holbrook, Mr. J. H. Goodwin, Mr. John Longdon, Mr. John Wibberly, Mr. John Dean, Mr. F. W. Cox, Mr. Cooper, Mr. A. Longdon, and Dr. Ogle. The district honorary secretaries were appointed *ex-officio* members of the committee. Mr. T. H. Harrison was re-elected auditor. Votes of thanks brought the proceedings to a close. Below are the names of the winners of the hives drawn for at the general meeting:—Mr. P. R. Morse, London Road, Derby; Mr. Thomas Glossop, Ambergate; Mr. George Smith, Belper.

ESSEX BEE-KEEPERS' ASSOCIATION.

The annual general meeting was held at the Corn Exchange, Chelmsford, on January 19th, 1883, at 12 noon, when the officers for the year were elected, and the report and balance sheet adopted.

HANTS AND ISLE OF WIGHT BEE-KEEPERS' ASSOCIATION.

The first ordinary General Meeting of the members of this Association was held on February 10, at the Town Hall, Christchurch. Owing to the tempestuous nature of the weather and the flooded condition of the town there were not a great many members present.

Captain Martin, of Stockbridge, was voted to the chair, and in opening the proceedings referred to the great interest he had always taken in bee-culture.

The Hon. Secretary then said: 'In presenting a statement of the affairs of the H. and I.W. B.K.A. at this the first meeting, it may be of interest to explain a little about the details of the foundation of our Society, which came about in a somewhat curious way. Your two secretaries (unknown to each other) had commenced each in his own locality the work of forming an association last autumn (one, indeed, having taken a first step as long ago as last May), and were put into communication through the medium of the B.B.K.A. secretary. A meeting was arranged half-way between Christchurch and Brockenhurst, where I had secured permission to go and attack a natural bee-house, whose fame had reached me, consisting of a hollow yew-tree which had been inhabited from time "whereunto man's memory runneth not" by bees of unknown numbers. The tree, a giant of the forest, stands at that part of the New Forest called Wilverley, from which magnificent views may be obtained over the surrounding country; and on a bright October day (Oct. 5, 1882) we met to settle the foundation of our Society, and to attack and despoil the bees. We began with the latter, and as it was the means of begetting that mutual confidence which alone can conduct any plans to a successful conclusion, I do not think it out of place to here recount what we did. And for the benefit of the uninitiated let me first explain that the whole operation was performed with the destruction of scarcely a single bee with the exception of such as committed suicide by stinging us. We had each brought such tools as we thought likely to be useful, amongst which I may mention one as being remarkably like a burglar's jemmy, which behaved very treacherously by breaking, as jemmies sometimes do! After looking to our horses, and a lunch in the open, we went to look for the tree, which we presently found by means of the bees themselves, and during a hasty survey we also discovered suspended to a dead bough the bones of a stag of a bygone age, as though left for some weird token. The "tee hole," as entrances are called in Hampshire, we found to be about fifteen feet from the ground amongst a lot of branches, where protection from bee-veils, &c., would be useless, so that we were saved the trouble of making up our minds on that point. After treating them to a few preliminary puffs of smoke we commenced sawing and chiselling out a square panel, but with the first jar of the axe, the bees, undisturbed for ages, sallied forth in numbers, and we were forced to christen them not vindictive Cypriotes but "Zulus." However, we got accustomed to them by degrees, and for a weary hour we sawed and chipped until we were finally rewarded by getting out a panel about one foot square, and our eyes (and afterwards our tongues) feasted upon the dripping comb packed away tier after tier, and extending upwards and downwards beyond our sight. It was not a difficult task to transfer this with the bees to pans and boxes, and after such labours we were little daunted by the difficulties to be settled in founding a Hampshire B.K.A. Details were discussed, and it was finally agreed that I should act as secretary, with the gallant captain as my assistant. Through the liberality of the British Bee-keepers' Association advertisements were published in the chief county papers asking the co-operation of bee-keepers throughout the county, and we at the same time drew up and sent out our first circular announcing the formation of the Association. The result of all this was most gratifying. Subscriptions and donations came in so that we felt justified in publishing our second circular, giving the names of our officers and an outline of our aims. If the enrolment of members and the numerous promises of help go to show that such a society was really wanted, and that a successful career was open for it, that demonstration has certainly been given. Our first circular was issued Nov. 10th, and by Dec. 31st we had enrolled fifty-five members, forty-four of whom had fulfilled the condition necessary to rank as founders. In addition to this there were numerous donations sent in amounting in all to 35*l.* 1*s.* 6*d.* A printed list will shortly be issued giving full particulars, so that I need not go further into details now, except to say that our total receipts to date amount to 75*l.* odd, and we have some eighty members enrolled. I need not remind you that this is merely our beginning, and that when we are in working order and have our tent at the different shows, I hope we shall multiply these figures fourfold.'

In conclusion, after urging upon those present the necessity of canvassing in their neighbourhoods to induce people to join the Association, he had the pleasure to propose that those gentlemen whose names had been announced by circular to the members should be elected to serve on the committee for the current year. Seconded and carried *nem. con.*

The next proposal was that the Rules and Regulations as printed be adopted; this was also carried, after some explanation *nem. con.*

The Chairman then proposed that the Hon. Secretary's Report be printed along with the list of members, which was also agreed to, and the Meeting then terminated.

The following are the names of the gentlemen elected to serve on the Committee: Vice-Admiral Phillimore, Botley; Lieut.-Colonel Farquhar, Wickham; Rev. Dr. Wray, Brockenhurst; Rev. W. E. Medlicott, Bishops Waltham; Rev. T. A. Lindon, Highcliff; Rev. Rowland Hill, Bournemouth; Rev. J. Pemberton Bartlett, Southampton; S. Andrews, Esq., Basingstoke; Capt. Martin, Stockbridge.

SUSSEX BEE-KEEPERS' ASSOCIATION.

The first Annual Meeting of this Association was held on Monday, February 19, at the Town Hall, Brighton. The Right Hon. the Earl of Chichester, the President of the Association, occupied the chair. There was a very good attendance of members, amongst whom were Lady Darnley, Rev. Canon M'Carogher, J. N. Andrewes (Hon. Sec.), Messrs. W. Blaber, T. W. Cowan, F. W. Otter, T. V. Hadlow, F. R. Jackson, B. Lomax, W. R. Upjohn, &c.

The President, in his opening remarks, expressed his pleasure at the satisfactory report of the Committee for the past year, and was sure that the work carried on had produced good results. He could speak to good done to his own tenants at Stanmer by the visit of the Bee Tent at the Royal Counties Agricultural Show in Brighton in June last. His Lordship thought the report had already created a good impression in the county, and that many persons would join as members. He moved that the report be adopted, and proposed a vote of thanks to Mr. Mayburn, who had audited the accounts.

Mr. T. W. Cowan, Chairman of the Committee, stated that since the Society was started on the 14th April last it had made very satisfactory progress, and he was glad to say they had got 175 members, of whom fifty were cottage members, and that the balance-sheet showed that a sum of over 200*l.* had passed through their hands, although the Society had only been formed eight months. This sum was only exceeded by the Central Society. Their Bee Tent, which had been paid for, had been sent to eleven shows in the county, and the receipts had been 50*l.* 19*s.* 9*d.* Of course the great expenses had been in connexion with the shows, more particularly the Brighton Show; but he thought that the 19*l.* 7*s.* 9*d.* received in the Bee Tent did not quite represent the returns, as a large number of members joined the Association at that show. He was sorry to say that there was a deficit of 15*l.* 15*s.* 7*d.* due to the Treasurer, and hoped that members by donations or increased subscriptions would soon clear off this debt.

The report stated that soon after the formation of the Association the Committee held their first meeting at Comptons Lea, Horsham, and decided on a plan of action for the season. The result was that they undertook the expenses of a show in connexion with the Royal Counties Agricultural Society's Show at Brighton, at which they gave prizes to the amount of 17*l.* 10*s.* The Annual County Show was held at Horsham, where prizes to the amount of 14*l.* 15*s.* were given. Both shows were well attended, although, owing to the bad season, the honey exhibits were very small. The Bee Tent which the Society purchased had also visited the shows held at Dane Hill, Crawley Down, Cuckfield, Buxted, West Grinstead, Isfield, Worthing, and Slindon. The receipts had been 50*l.* 19*s.* 6*d.* Lectures had been given in the county by Rev. D. A. Doudney, Messrs. P. H. Phillips, Blow, T. W. Cowan, T. V. Hadlow. The *British Bee Journal* had been circulated in eight districts, seventy-one numbers having been sent out. Two members of the Association went up for the examination of experts held at South Kensington, Mr. C. T. Overton obtaining first-class, and Mr. J. Taylor second-class certificates, and both were now available as experts. The Association numbered 175 members, of whom fifty were cottage members. The total amount received by the Society was 200*l.* 19*s.* 10*d.*, and included 67*l.* 4*s.* 3*d.* received for subscriptions and donations; 10*l.* 4*s.* for entry fees; and 50*l.* 19*s.* 9*d.* from the Bee Tent. The expenditure includes 32*l.* 5*s.* for prizes, and 21*l.* purchase of the Bee Tent. There is a deficit of 15*l.* 15*s.* 7*d.*

The report was received, and the recommendations contained therein adopted.

On the motion of Mr. W. Blaber, seconded by Mr. Upjohn, a cordial vote of thanks was passed to the officers and committee for their energetic services during the past year.

Mr. Cowan moved the re-election of the President, Vice-Presidents, Treasurer, and Secretary, for the ensuing year.

Mr. Jackson seconded the motion.

The motion re-electing the officers was carried unanimously, with the addition of Viscount Gaze and Lord Henry Lennox.

The President and Rev. N. Andrewes having briefly replied, on the motion of Mr. Hadlow, and seconded by Mr. Blaber, the Acting Committee was re-elected, with the addition of Mr. Wedd, of Charman Dean, Worthing.

Mr. Lomax proposed, and the Rev. Canon McCarogher seconded, a vote of thanks to the President.

The noble Chairman, in acknowledgment, said he took a great interest in the Association. Though he himself was not an expert in the management of bees, he felt there was scarcely a district in England where bees gave better honey than Sussex. He thought all would do well to do their best to encourage a humane system of bee-keeping, and he hoped the Association would succeed in spreading its works and objects.

At the close of the business the drawing for the prize hives took place. The successful ones were Mr. Hammond, Gas Works, Lewes (member), and Mr. J. Pilkington, Hayward's Heath (cottage member).

WORCESTERSHIRE BEE-KEEPERS' ASSOCIATION.

A meeting of the members of the above Association was held at the Guildhall, Worcester, on Saturday, Feb. 17. The Rev. J. Ross-Barker, vicar of Evesham, presided. The Hon. Secretary stated that since the preliminary meeting, held in October last, fifty members had joined the Association, and he had received promises of support from many others in different parts of the county. Dr. Fernie proposed, and Mr. C. H. Haynes seconded, the election of the following noblemen and gentlemen as president and vice-presidents:—President, Earl Beauchamp. Vice-Presidents, the Lord Bishop of Worcester, the Earl of Dudley, Lord Northwick, Lord Lyttelton, the Dean of Worcester, Lady Georgina Vernon, Lord Edward S. Churchill, Sir E. A. H. Lechmere, Bart., M.P., and Mr. G. W. Hastings, M.P. The Rev. W. M. Kingsmill proposed, and Mr. A. W. Rollins seconded, the re-appointment of Mr. A. H. Martin as hon. secretary, and Mr. T. J. Slatter, F.G.S. as hon. treasurer. A committee of twenty-two members, with power to add to their number, was then elected. It was also resolved that the committee appoint an expert to the Association if funds permit. The meeting closed with a vote of thanks to the Chairman for presiding, and the names of eight new members were handed in to the hon. Secretary.

STAFFORDSHIRE.

A County Bee-keepers' Association has been established for Staffordshire. Those who may be desirous of joining the Association should send in their names either to Arthur H. Heath, Esq., Biddulph Grange, Congleton, or to H. Bostock, Esq., Rowley Avenue, Stafford. The Lord Wrottesley, Lord Lieutenant of the county, has promised to act as president.

REPORTS OF COUNTY ASSOCIATIONS.

Reports for the past year (1882) are to hand from the following counties, showing the number of members of each Association to be as follows: Brecknockshire, 53; Cornwall, 134; Derbyshire, 126; Devonshire, 170; Dorsetshire, 123; Essex, 138; East of Scotland, 147; Hertfordshire, 328; Kent, 210; Leicestershire, 103; Norfolk,

231; Oxfordshire, 48; Surrey, 150; Sussex, 175; Wiltshire, 185; Yorkshire, 80.

We now await the reports from the remaining affiliated Associations, but unless these are sent in by the 15th of March, the Reports will be bound and a copy sent to the Secretary of each, as the volume loses all its usefulness to County Secretaries if it is not placed in their hands in the spring-time when they are making their arrangements for the year. Many a secretary can take a hint from the doings of his brother secretaries. The collection of reports has the same object in view as the Quarterly Conference of Representatives of County Associations, viz. to bring them all together that each may learn what the others are doing.

BEE TENT ENGAGEMENT.

June 20, 21.—Agricultural Show at Truro.
July 16 to 20.—York Show.
July 24.—Agricultural Show at St. Ives.
July 25 & 26.—Leicestershire Show at Melton.
July 26.—Waltham Cross Horticultural Show.
Aug. 6 & 7.—Northampton Show.
Aug. 14.—Clay Cross Horticultural Society.

SUSSEX ASSOCIATION.

Aug. 30.—Pulborough Flower Show.

BEE-KEEPERS AT HOME.

No. II.—Mr. C. N. Abbott, at Fairlawn, Southall.

(*Continued from p.* 226.)

The relationship that subsisted between Dr. Coster and Mr. Abbott was unhappily suddenly cut short by the death of the former in 1870, when, having purchased the whole of the doctor's apistical assets, Mr. Abbott became a bee-master on a more extensive scale than formerly, and found the profits so large as to induce him to consider bee-culture worthy of national attention. With this view he became a writer in the *English Mechanic and World of Science*, and occasionally in the *Journal of Horticulture*, in both of which he strongly advocated the frame-hive system. The 'battle of the hives' raged rather furiously in the pages of the latter, and Mr. Abbott had the courage to accept the famous challenge annually thrown down by Mr. A. Pettigrew, and offered to pit a number of frame-hives against as many straw skeps, but the challenge was withdrawn by Mr. Pettigrew on the ground that Mr. Abbott relied on 'management,' while he maintained that to prove the value of hives the bees should be put into them and 'let alone.' Mr. Abbott laboured hard in the good cause for many months, each day becoming more convinced of the national importance of bee-keeping. At length he threw up his appointment at the Central London District Schools with the intention of devoting himself wholly to the pursuit; and determined, though with considerable diffidence, to initiate a paper that should be devoted to bees alone.

It was one thing, however, to propose to float a new paper, but quite another to find out how to carry it into effect. But because the obstacles were great, and were overcome, and seeing the immense good which has resulted from the *Journal's* teaching, we feel that our readers will be interested in a short recital of some of them, which we give as described by Mr. Abbott:—

'It was a serious business; 5*l.* spent on advertising for the names and addresses of those interested in bee-keeping produced three replies only—publishers required about thirty per cent of the proceeds of the sales of journals, and from ten to fifteen per cent of the remainder. The railway book-stall people said it was their business to supply a demand and not to create one, and would have nothing to do with it; and the papers that published bee-matter were too deeply offended to say a single word in its favour. Having, however, perfect faith in the necessity for a Bee Journal, I determined to apply to bee-keepers direct, and having collected from all available sources the addresses of those who had written on the subject, and on whose enthusiasm it was felt safe to rely, circular letters were sent to them explaining the object in view, and asking for the names of all the bee-keepers known to them. By this means the list increased in a month from forty to over two thousand, and out of these about sixty promised subscription and support. Then came the first issue comprising 3000 copies, of which 2500 were sown broadcast. Of the second issue, 1500 were sent out chiefly to clergymen; and of the third over 500 were sent to the principal agriculturalists of the country; and as the outcome of these ventures, the subscription list increased to over two hundred. Two hundred subscribers at the cost of 6000 *Journals* and 5000 circulars, to say nothing of advertisements and postages, was not very satisfactory, but the tone of general satisfaction evinced by them was encouraging; and as the *Journal* brought all these into communion it was thought that by creating an object of more extensive interest than the *Journal* once a-month could intrinsically be, a stimulus would be given to bee-keepers generally, and the *Journal* would be more in demand, and would consequently become more useful. With this view a meeting at the Crystal Palace was proposed, which, meeting with limited approval, was amended by a proposal that a great exhibition of bees and appliances should take place; and this appearing more agreeable was "talked" of month by month until suddenly a list of subscriptions towards prizes was published, amounting to sixteen guineas; and this soon became much increased, and proved a turning-point to the success of the enterprise. With two hundred bee-keepers interested in a coming show, in which all who could produce bees, honey, or appliances, had a chance of becoming famous by winning Crystal Palace Prizes, it was no wonder that renewed interest was taken in the organ by which such "great" things had been brought about, or that before the end of January, 1874, the prize list amounted to 31*l.* 12*s.* 6*d.*, and the number of subscribers to the *Journal* to nearly three hundred. In the February number the appearance of the proposed Schedule of Prizes amounting to nearly a hundred pounds appeared, and this was the signal for discussion of the whole scheme by its opponents who expressed their views in other journals, and gave it a circulation which satisfied the utmost wish of its promoter, and insured the success both of the show, and of the *Journal* in which it had been proposed.'

It is needless to follow this history further, for is it not written in the *Journal* itself? But it is worthy of remark that Mr. Abbott was the proposer of and the chief operator at the first public exhibition of manipulation with live bees that ever took place in England at which the operations were explained, and the mysteries of management revealed, at the Crystal Palace in 1874; in Scotland, at the Kebble Crystal Palace, Glasgow, 1876; and in Ireland, at various places in 1880. Mr. Abbott's improvements in hives and bee-fixings form a history in themselves, and his catalogue for this year shows a list of 291 recorded. His connexion with the manufacture of hives and appliances was not foreseen in the beginning of his career as a journalist; indeed he studiously avoided the business as in a sense incompatible under the circumstances, and every application for goods of any kind was on principle referred to a Surrey hive-maker of note at that time, but who from reverses suddenly found himself

unable to fulfil them, and, in extremity, Mr. Abbott was compelled to employ a joiner nearer home; and he not having accommodation for the increasing demands it became necessary to provide it 'a home' at Hanwell. The poor man, however, died quite suddenly, and the business increasing, others were employed; and Mr. Abbott's sons, then leaving school, became as it were apprentices, and on the removal of the firm to Southall, the style of 'Abbott Brothers' was adopted. The removal to Southall was well timed, though from the expensive character of the place somewhat timidly undertaken, for, with the increase of the circulation of the *Journal*, the multiplication of bee-keepers and bee-shows, the business has gone up by leaps and bounds, requiring a larger staff and numerous buildings, and increased 'power' to accommodate it. The firm has found full employment for a minimum of twenty-five 'hands' during the whole of the past winter, and has of late introduced a six-horse power gas-engine, which will presently be driving five saw-benches and a planer. There are also seven machines for the manufacture of comb-foundation; and Messrs. Abbott are very large importers of sections from America, and honey-jars from Germany.

Mr. Abbott was editor of the newly-published translation of Dzierzon's *Rational Bee-keeping*. He has acted as expert and judge at many shows; was awarded silver medal at Paris Show, 1878; received a diploma of merit at Colmar, Alsace, in 1880; and was elected an hon. member of the Ontario Association, Canada.

Foreign.

ITALY.

A new monthly journal has just made its appearance. It is called *Le Api ed i Fiori* (Bees and Flowers), and is edited by Professor Alessandro Chiapponi, of Jesi, in the province of Ancona. The high tone of its first number, although issued in a very small form, has produced a most favourable impression among the bee-keeping community, and it is felt that it will not be long before it assumes a prominent position among Italian literature.

Under the heading of 'Bee-keeping at the time of the Roman Emperor, Augustus Cæsar,' the *Apicoltore* reproduces an Italian version of Virgil on bee-keeping, as found in his Fourth Georgic. The contrast between his theory and that of the present time is interesting in more than one respect, and a perusal thereof seems to point to the fact that bee-keeping was better understood by the poet, although born seventy years B.C., than by many apiarians of the present century.

The same journal gives a report of a discussion on 'Wintering Bees' at the Twenty-seventh Congress of German and Austrian bee-keepers, held last autumn at Neustadt, near Vienna.

FRANCE.

Judging from the summary of reports reaching the Société d'Apiculture de la Gironde, the quantity of honey gathered last year was probably above the average. Swarms, however, have been exceptionally scarce. M. Duffan, in his report to the *Bulletin* of the Society, states that out of seventy-one stocks, only seven natural and two artificial swarms were obtained. The above Society, which represents the apicultural interests in the Bordeaux districts and the 'Gironde' generally, will meet during the present year on the following dates: 9th February, 9th March, 13th April, 11th May, 8th June, 13th July, 10th August, 14th September, 12th October, 9th November, and 14th December. The meetings will be held at the Salle de l'Académie, No. 10 Allée de Tourny.

ALSACE-LORRAINE.

On the 10th September, 1882, a meeting of the bee-keepers of the section of Hohwald was held in the theatre of the Hotel Kuntz. The audience was chiefly composed of practical apiculturists of the valley, and of the Bon de la Roche, of the numerous occupants of the hotel, including Russian, Dutch, and English families, also an American consul, &c. These were much interested in the lecture delivered by Mr. Dennler on the autumn management and on winter feeding. They were, also, much delighted with the ease with which Mr. Dennler handled the bees, and with the uniting of two feeble stocks. Mr. Dennler was ably assisted by Mr. Kraemar, of Brumath. The committee of the section were then re-elected, with Colonel Pearson as their president. Lots were then drawn for five hives with moveable frames, well stocked with Carniolan bees. Twenty-nine members, who had belonged to the section for at least two years, participated in this drawing. Two years ago the forty-four members of the section had at the most twenty stocks, more than half of which were in straw hives, now they have about 100 hives, nine-tenths of which are in bar-frame hives. The last two years have not been favourable for honey-getting.

AMERICA.

Fertilising Queens in Confinement.—A correspondent of the *American Bee-keepers' Magazine* gives the following directions for causing queens to be fertilised in confinement, which is regarded by many as impossible:—'Procure a wire cloth dish-cover nine to ten inches in diameter, fasten to a piece of thin board, with a door made in the board large enough to put in your fist, and you will have as good a fertiliser as can be made. They cost, generally, only thirty cents each. If no dish-covers are to be had, make a cage of fine wire-cloth, twelve or fourteen inches long by six or eight inches in diameter; fasten on the inside of the fertiliser a piece of empty comb (drone-comb is the best) three or four inches square, which, when required for use, fill with honey and water, taking pains not to spill any honey about, or the queen and drones become daubed so as to prevent them from flying. On the morning of the day a queen is to leave the hive, usually the fifth day after hatching, catch her and put her with four or five selected drones in the fertiliser. The drones that are to be put with the young queens should be good, strong, vigorous fellows, and should be caught as they are about to leave the hive. Those returning from a trip will not answer, as they are too much fatigued. Lay the fertiliser, when fixed, so that the warm air can get into it over the frames of the hive to which the young queen belongs; if a dish-cover fertiliser, put the rounding side downward. The fertiliser can be put on any hive. I have put three on one hive at a time. Put on the cap, which should have an opening in the side or top, covered with glass, to admit light. Leave her there thirty-six or forty-eight hours, the shorter time usually answers. At the end of that time, if a dead drone is found, examine it, and if the genitals are gone, release the queen, and she goes down into the hive and commences to lay in a few days, or give the bees of a nucleus a dose of smoke, and put her with them until required. If you doubt whether she has become fertile, and think she will leave the hive to meet the drones, clip her wing, or shut up the hive until she begins to lay, as I have often done, and your doubts will vanish quickly. The important discovery is this: "That queens will be fertilised in confinement if shut up at about the time they would have flown with four or five selected drones," no matter how the thing is managed, or what kind of fertiliser is used. I look upon it as the most important discovery that has ever been made in bee-culture, as it prevents all loss of queens by flying away, and enables us to breed bees with as much certainty as can be done with horses, cattle, or other stock.'

BEES AND FLOWERS.

Recurring to the subject of early flowers one thing may certainly be said in their favour, and it is that their cultivation involves no sacrifice of the proper enjoyment of the garden, or any curtailment of its attractive features, for while the bees are gratified and preserved, the amateur devoted exclusively to his cherished plants may have his fair share of pleasure on the bright and cheerful array of flowers that our selection of bee-flowers presents. The season is particularly early, and the plants I have named as being worthy of notice, and calculated to delight both florist and bee-keeper, although at present in bloom, cannot be relied upon to offer their floral gifts in February, but all of them habitually flower in March.

Cruciferous plants as a rule yield rich and wholesome food to bees, and three good plants already flowering represent the family at this moment. These are Cardamine rotundifolia, early yellow Wall-flower, and Arabis albida. The first-named is by no means so well known as it deserves to be; its profuse and early white flowers and its hardy nature make it a very desirable plant for all gardens; it seems to be even more attractive to bees than the Arabis. The merits of the two other crucifers, Wall-flower and Arabis, are too well known to need further comment.

Continuing the list of the earliest gifts of spring, I may mention Eranthus hyemalis, a plant whose bright yellow flowers now cover the ground like a golden carpet, and whenever a gleam of sun invites the occupants of the hives to range they are sure to find the bright banks of winter Aconite. The tall free blooming varieties of Helleborus orientalis are rich in pollen, and are always sought out by bees, and these will continue to bloom throughout March.

In mentioning Anemone blanda as being singularly beautiful, very early, and a favourite bee flower, I must regretfully add that, although of easy culture and very hardy, it is by no means generally known or easily attainable. Saxifraga Burseriana is an Alpine form of that varied family, its charming white flowers are now expanding from its many clustered tufts of green. Very different is the large-leaved Saxifraga ligulata, which is now throwing up massive heads of bloom, but, unlike the preceding, it is sensitive to severe frost.

Tussilago fragrans is now blooming abundantly and scenting the air, but it is a plant not to be rashly introduced among rare flowers, but relegated to some wild bank, or little regarded shrubbery, it will secure toleration. An early form of cowslip called Primula macrocalyx is now blooming freely, and therefore claims a place in my list; and the various kinds of crocus are daily appearing.

The beautiful Erica carnea is also tempting bees by its profuse and lovely blossoms, which in spite of adverse weather may be expected to last until March is over. Three shrubs are also blooming, Berberis aquifolia, Andromeda floribunda, and Jasminum nudiflorum. I will bring this notice of early flowers to a conclusion by giving the names of certain plants useful in the garden of a bee-keeper, and of which seeds should be sown in March, Phacelia congesta, Melilotus alba, Wall-flowers, Clarkia alba, Mignonette, Borage, Echium violaceum, Iberis umbellata, Liatris spicata, Verbascum phœniceum.—Wm. Ingram, *Belvoir*.

Correspondence.

**** All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

As it will be the aim of the Editor that the Journal should be published simultaneously with the other monthly serials, Correspondents are respectfully requested to forward their communications as early as possible.

All Correspondence must bear the name and address of the writer, not necessarily for publication, but as a guarantee of good faith.

SUGGESTIONS FOR 'THE HANDBOOK:' STRAW SKEPS FOR COTTAGERS.

The thanks of county secretaries and experts are due to the Rev. E. Bartrum for bringing this subject before the committee of the B. B. K. A.

To begin at the beginning, Rule 11 of the B. B. K. A. says, 'Its object shall be the encouragement, improvement, and advancement of bee-culture in the United Kingdom, *particularly* as a means of bettering the condition of *cottagers* and the *agricultural labouring classes*.'

The Norfolk and Norwich B. K. A., Rule 11, says, 'That its object shall be the encouragement, improvement, and advancement of bee culture, *particularly* as a means of bettering the condition of *agricultural* and other *labouring classes*.' The italics are mine.

My conviction is, that if the object for which these Associations are intended, viz., to benefit the numerous families of John Hodge in this and other large agricultural counties is to be carried out and made effective, you must begin with a flat-topped straw skep, with a hole in the top, and instruct John Hodge how to make the most money out of it.

Money can be made by keeping bees in straw skeps, as I have proved to my own satisfaction during a period of fifteen years: and that they thrive and survive in them in all sorts of weather, is also proved by the bees in my own garden, they having been brought here in the year 1801, and here they have been in straw skeps without intermission for upwards of fourscore years.

The cost of a good, useful bar-frame hive is, to the agricultural labourer, a very heavy item of expenditure, even provided he has the bees to put into it, and say, for the first year, there will be no returns for his outlay.

As to his making a bar-frame hive, in most cases he is not provided with either tools or materials; neither, without a guide, pattern, or instruction, could he make one sufficiently accurate to be useful; and it is well known to all bee-keepers there is no greater nuisance extant than a bar-frame hive where things *don't* or *won't* fit properly.

In a new edition of *Modern Bee-keeping* straw skeps and their proper management should, in my opinion, be as practically considered, and the subject-matter contained therein as well written, as any other; and for this reason, its professed object is to better the condition of the labouring classes. The straw skep has been and still is destined to be (notwithstanding all what B. K. A., scientific gentlemen, experts, and others have said, and do say to the contrary) for some years to come the poor man's hive.

I do not wish the readers of the *British Bee Journal* to think I am advocating the use of straw skeps in preference to bar-frame hives. Nothing of the kind; I have

them both in use in my garden, and hope I always shall. There are to me associations connected with the old straw skeps of my forefathers, which make its presence in my garden recall many happy reminiscences—'thongh lost to sight to memory dear.'—Thos. Crane Edmonds, *Caister Great Yarmouth.*

SKEPS.

The discussion at the General Meeting ended in a resolution that a short treatise should be issued by the British Bee-keepers' Association on the best use of the straw skeps with special regard to cottagers.

I think there are many grounds for regretting this decision, but it is too late now to record them. What is important, in the true interests of bee-keeping, is for the treatise *to lead up to the use of the bar-frame hive*, and to include in its pages some elementary instruction in its management. The cottager who limits himself to the old-fashioned skep will never be an advanced bee-keeper, and can never realise the profits and pleasures to be obtained by the use of the moveable frame-hive. At the same time much may be done and taught in the way of better and more humane management of the skep; and if County Associations continue the good practice of giving frame-hives as prizes among cottagers, we may hope to engage cottagers to inquire into the advantages of the higher methods of bee-keeping. I fear, however, that still too many will be content with the small improvement and miss the larger gains which would be open to them if they were better instructed.—D. S.

BEE-CLUB ROOMS.

At the close of the report of the B. B. K. A. a suggestion is thrown out which, I think, deserves a more prominent place. I allude to the proposal of taking rooms in some central position in London where meetings may be held, the library fixed, and writing and smoking-rooms provided for the convenience of members.

Although, personally, I fear these would not be of great use to me, I feel that some means of enabling northern, central, and southern bee-keepers to rub together would be highly desirable, where hobbies might be freely discussed without the imputation of suffering from bee-fever or mania! Moreover, I believe the B. B. K. A. would reap great benefit from it. There are many difficulties in the way, of course; but these ought not to be insuperable. I imagine there are plenty of bee-keepers who would subscribe a guinea annually for the privilege of using the rooms, and giving passes to their poorer neighbours to do likewise; and if more money was wanted I believe it would be forthcoming.

At all events, I shall be happy to send a life-member's subscription of 5*l.* to the Association, or to subscribe annually if this object is carried out.—E. H. Bellairs, *Hon. Sec. H. & I. W. B.K.A., Christchurch, 12th Feb.*

EXPERTS.

I endorse most fully the remarks in your editorial in February *B. B. J.* as to the importance of county experts, and with your permission will add to the qualifications enumerated by Mr. Peel in his paper read before the Devon B. K. A. as reported in your columns.

An expert should not only be a native above the labouring class, intelligent, possessing thorough knowledge of his subject, honest, trustworthy, modest, genial, able to speak more or less fluently to an audience, of sufficient resource to manage bees under adverse circumstances, able to pass an examination,—qualifications in themselves sufficient to raise him to the status of a village tradesman,—but he should be able to stand the outlay of travelling and contingent expenses, and wait from two to four months before he is repaid, not to mention his fees, which of course represent his wages.—An Amateur Expert.

[No well-managed Association should keep an expert waiting for his wages if he has earned them fairly and honestly, and his travelling expenses and outlay, as far as we know, are always allowed him in addition to his salary. We imagine our correspondent is writing about an expert who accompanies a bee-tent to flower shows, &c. The paper read at Exeter referred mainly to an expert employed by the committee of an Association for spring and autumn tours throughout a county, and the visitation of members at their homes.]

EXPERTS.

At last the Surrey Bee-keepers' Association, as Mr. Lemare stated at the General Meeting, are going to have an expert; but as the county is a large one I shall be much obliged if you could insert in the *Journal* that I have offered to act as expert for Wimbledon and the adjoining districts. You very kindly thought that I need not undergo an examination, and I am very glad that I am spared the ordeal.

Unless some of us can manage to put ourselves to some inconvenience I am afraid bee-keeping will not prosper.

The Committee of the Surrey Bee-keepers' Association have also kindly consented to supply the local secretaries with a copy or copies of your *Journal* to circulate among the members; and if this plan were followed in other counties I think we should not find so much difficulty in getting subscribers, as in return we give them something for their money.

The fortnightly issue will be a great boon.—George Walker, *Local Secretary, Wimbledon District.*

OUR HONEY IMPORTS.

In accordance with my promise I beg to subjoin the figures relating to this subject which I have just received from the principal of the Statistical Office. In his letter he remarks that the amount 'seems small, but I suppose you would not expect large importations at this time of the year. I have no reason to believe that honey has been brought in to any other ports than those named. If there is anything wanting in accuracy at the start, I will do my best to improve upon our plan of acquiring the information as the months go on so as to have something that can be depended upon when the honey harvest arrives.'

As we shall probably find these returns growing in interest from month to month, I make no apology for asking you to publish them.—E. H. Bellairs, *Christchurch.*

Value of honey imported in	London,	Jan. 1883		£974
„	„	Liverpool	„	627
„	„	Newhaven	„	6
	„	Harwich	„	5
				£1612

[We hope to be enabled to give these interesting statistics regularly every month.]

IMMUNITY FROM STINGS.

We often hear of persons being impervious to bee-stings, or safe from attack, and I find in the first volume of Mrs. Butler's (Fanny Kemble's) *Records of Later Life*, page 56, the following:—

'I have, too, a fine hive of bees, which has produced already this spring two strong young swarms, whose departure from the parent hive formed a very interesting event in my novel experiences; especially as one of the stablemen, who joined the admiring domestic crowd witnessing the process, proved to be endowed with the immunity some persons

have from the stings of those insects, and was able to take them by handfuls from the tree where they were clinging, and put them on the stand where the bee-hive prepared for them was placed. I had read of this individual peculiarity, with the incredulity of ignorance (incomparably stronger than that of knowledge); but seeing is believing, and when my fiery-haired Irish groom seized the bees by the handful, of course there was no denying the fact.'

Anyone who is fearless, and at the same time gentle, may handle bees when they cluster at swarming-time; but does any one really possess the advantage of *immunity from stings* as related above?—D. S.

THE CONSTRUCTION OF THE BEE-CELL.

Unlike 'A Farmer,' I am very, very glad that September 29th is so far distant.

With regard to his questions it is not generally considered necessary if you want to demonstrate what curve a particular equation represents to begin by proving that 2 and 2 are 4, and so I took it for granted that your readers were aware of the fact, that the weight of the bees and of the comb provides the pressure, and my expression, 'helping the "pressure theory"' meant, of course, mere helping to demonstrate, &c.

With regard to the queen-wasp building a hexagonal cells, it was also stated in the Rev. J. G. Wood's paper that there is a bee or fly, I forget which, which also builds hexagonal cells: but even granting this, it does not necessarily disprove the 'pressure theory.' In the multiple eye of the common house-fly the facets are first circular, and then become hexagonal, presumably by pressure.—GEORGE WALKER.

A FEW NOTES ABOUT BEES.

In reading the discussion on Mr. Haviland's paper in January number of the *British Bee Journal*, I was struck by the remarks and opinions on the transfer of eggs by the bees, as I thought most bee-keepers of the present day were fully convinced that they do so. For my part, I have had sufficient proof to remove any doubt on the matter.

This power and willingness to remove eggs when required is the first stepping-stone to the now disputed question as to whether the queen lays in royal cells or no. The jealousy of queens, their antipathy to queen-cells, and the reluctance with which a queen leaves her hive when swarming, all tend to confirm an opinion to the contrary.

Mr. Haviland remarks—'If, indeed, bees can and do transfer eggs from one cell to another, why is it that when their queen is taken from them they do not transfer an egg into one of the true royal cells, which they at once commence to build, but leave the egg from which they wish to raise a queen in its worker-cell, merely making the end of the cell like a royal cell?' The very removing of the queen alters the circumstances entirely, and the bees never commence *true* royal-cells on the removal of a queen, neither would they tenant one which might have been commenced before the queen's removal. All their energy is now centred, not in preparing for the future, but to repair the great loss they have sustained; and they naturally endeavour to do so as quickly as possible, and therefore choose a grub far advanced, which being unable to remove, and generally speaking being in the warmest and most convenient part of the hive, they commence by enlarging its cell; hence it is that when a queen is removed from a hive, unless measures be taken to prevent it, we have usually a queen hatched in ten days.

But with swarm-cells the case is different; it is then an instinct for the perpetuation of their species; there is no immediate need for a queen, and therefore the modes of proceeding are altered. The cells are not now constructed in the centre of the hive, but as if to keep the knowledge of their presence from the queen as long as possible, and as being more easily guarded, are almost invariably built on some of the outside combs, and on the edge or bottom; and there being no occasion to hurry over the operation, these are tenanted with an egg as being the most easily transported; but I don't believe the queen ever lays in these cells, and hope the day is not far distant when the matter will be settled beyond all dispute.

These cells are often so shallow, when tenanted with an egg, that the queen must have wonderful discrimination not to lay an unfertilised egg; and if, as some writers say that it is the pressure of the narrow cell that fertilises the egg, then these swarm-cells would always have a drone-egg laid on them.

The theory of Herr Vogel as to the production of wax is certainly novel, and I think absurd, and his reasonings in support of it would not help to lead many into his way of thinking. He begins by saying that bees do not employ vegetable wax in the construction of their combs. 'The material of which combs are made is bees-wax.' And afterwards goes on to say that the material of which the combs are made is not a product of the bees but of *plants*, and compares the secretion of wax by the bee to a mere mechanical separation of the particles of wax, which he makes out are contained in honey and pollen. I should however quite agree with him where he says 'it is obvious that pollen contains particles which serve in the production of wax,' if by particles we understand chemical atoms.

A cow eating grass, and having the other requisites for life, water, air, &c., yields milk, in which are the fatty globules, the union of which into a coherent mass by churning we call butter, but I don't think anyone would say that these fatty globules existed in the glass. Similarly with the bee feeding on pollen and honey, produces under certain conditions the little wax-scales resembling mica, which, when worked up by the bee, furnishes the material of which the combs are made, not that the pollen contained the wax, but that it contains some of its constituents. We require the organism of the cow to get butter from grass, so do we require the organism of the bee to perform that chemical decomposition of the pollen by which some of its elements go to the production of wax.

I had lately an opportunity of witnessing the ejectment of watery fluid by the bees, as described by A. I. Root, when speaking of the Simpson honey-plant in his '*A B C*.' In front of the hives some thirty yards away, there is a large oak, almost completely covered with ivy, and walking by it one morning, I stopped to listen to the hum of the bees, and to watch them passing to and from the hives. The morning was beautiful, and the sun shone across the line of flight. I was surprised to see a glistening spray of water falling every now and then, as there was not a cloud to be seen, and immediately remembered the account given by Root. By singling out a bee as it flew homeward again and again, I saw them eject a fine spray of water just as he relates.—FRANCIS H. JONES, *Mullinabro', Waterford*.

[We have omitted a 'Note' from the above letter, which we hope to utilise at some future opportunity.]

RAILWAY COMPANIES AND THEIR REGULATIONS.

If the various railway companies are to be communicated with, about reducing passenger fares and rates for goods, in connexion with bee shows, would it not be well to endeavour to get them to remove the absurd regulations restricting the conveyance of living bees? The matter was referred to in the *Journal* for December last, page 168.—C. T.

[It will be seen by referring to the resolution passed

by the Committee of the B.B.K.A. on p. 244 that they purpose having a conference with the Railway Superintendents on this matter.]

SOMERSET: AN APPEAL TO DEVON, DORSET, AND WILTS.

Somerset is still all behind in the matter of organization and in making preparations for the coming season. The zealous men of Devon, Dorset, and Wilts, have already undertaken work in Hants and Cornwall, and have thus helped to give bee-keeping a fair start in the two counties last named. Will they not now take Somerset in hand? By a little combination of effort on their part, they could literally compel Somerset to come into the circle of the county associations. Our good friend, Mr. Dunman, with his Dorset tent, expert and volunteer helpers, might arrange to hold manipulations at Sparkford, Somerton, or Ilchester, in connexion with the annual flower shows at a very slight expense. If a floral exhibition should be held at Yeovil (and there is some talk of it), Dorset, Devon, or Wilts, will probably be asked to arrange for a bee-keeping department. The work has been begun at the two places first named, and there are many intelligent local bee-keepers. At Ilchester there are several skeppists who are wishing to go in for bar-frame hives, but cannot yet make up their minds, while the vicar has already decided to do so, and prizes for honey are to be awarded next August. Mr. Griffin and Mr. Dangar, the zealous honorary secretaries for Devon, would back up the efforts of Mr. C. Lewis, of Fore Street, Taunton. A show could probably be arranged for in the county town of Somerset also. Prizes for honey have been awarded by the local horticultural society for years past, and there has often been a good show of supers.

Taunton is splendidly situated, railways branching out in all directions. There are advanced bee-keepers at Weston-super-mare, Ilminster, Taunton, Bridgwater, and many other places easy of access, who would, no doubt, gladly co-operate, if permission to hold a show could be obtained from the horticultural committee. The Rev. W. E. Burkitt would gladly, I believe, make an effort at Bath if a fair amount of local support was forthcoming. By the bye, won't Mr. Perrett make another effort at Weston-super-mare this year? He did so well two years ago that it will be a pity if he now gives up the good work entirely. It is passing strange that so little has lately been done in the county. Let us hope that active and enthusiastic bee-keepers in adjoining shires will do their utmost to help dispel the lethargy. I will give a trifle towards the expenses at either of the places named. Where manipulations cannot be arranged for, a few pounds offered as prizes for honey would probably produce good results if advanced bee-keepers living within easy reach of such shows, will take the trouble to enter their best supers. I have great faith in the educational value and attractive power of a crate or two of well-filled sections and an observatory hive. Will the pioneers in Devon, Dorset, and Wilts, try their effect in Somerset during the coming summer, if the county Association does not set to work? But the necessary arrangements should be made early. The secretaries of the horticultural societies would, perhaps, get their committees to be a little more liberal than usual with prizes if better shows of honey, &c., were likely to result. Moreover, the arrangements could be announced in their schedules.—LONGBORTH.

READY-WRITERS WANTED.

There is a fine field open for teaching bee-keeping if a few of our leading bee-masters care to spare the time to attend to it. Several of the agricultural journals and gardening papers often publish articles and reply to questions on matters apicultural, but some of the editors evidently trust to odd contributors for such assistance as they require in this way, and the results are not always satisfactory. Probably our worthy chief, the Rev. H. R. Peel, could induce some of his zealous volunteers to help in this good work. If so, I have no doubt the editors of the *Gardener's Chronicle* and that excellent and popular little weekly, *Gardening Illustrated*, would be glad to hear from him. Then, there are the *Chamber of Agriculture Journal*, the *Irish Farmers' Gazette*, and other papers with bee-keeping departments that would be all the better for the supervision of a gentleman who is well up in the subject, practically and theoretically.—SOMERSET.

THE STANDARD FRAME.

If the British Bee Association Standard is to become general the Committee must use every legitimate means to secure its adoption. I attended several Shows in the West of England last season, and found three Standards adopted in three adjoining counties. This is a practical bar to the freedom of sale and exchange between neighbours, and is much to be lamented. Prizes given by the Committee for good, cheap Standard hives would probably have a beneficial effect. A circular issued to local secretaries, or an article in the *Journal* on the importance of the subject, might bring about the desired result. As this is a matter of great importance, and must have considerable influence on the future of bee-keeping, would it not be well to encourage local hive-makers by awarding medals to hives instead of honey for a time? Some of our bee-keepers have rung the changes again and again on the silver and bronze medals for their piles of supers, and could well afford to allow the hive-makers to share the honours.—WEST COUNTRYMAN.

TWO-POUND SECTIONS.

As I found last year the 2 lbs. sections varied much in capacity, I think it would be an advantage to bee-keepers to know the proper capacity of a section to hold an honest 2 lbs. of comb honey when fairly filled, or on an average as they come off the hive.

Sections to hold 2 lb. of comb honey must have a capacity of 66 cubic inches, inside measures; that is length, breadth, and thickness, inside measures, all multiplied together, make 66. For example, $6\frac{6}{8}$-in. by 5-in. by 2-in. equal 66, which, if made of wood $\frac{4}{8}$-in. thick, would measure outside $6\frac{7}{8}$-in. × $5\frac{1}{8}$-in. × 2-in. I mention this because most makers in giving dimensions of their sections give outside measures, which often misleads those who are calculating for capacity, $5\frac{6}{8}$-in. by $5\frac{6}{8}$-in. by 2-in. equal 66-in. inside measures. I have tried sections of $2\frac{1}{2}$-in. and 3-in. thick, but the bees will not fill them flat, they make various contortions in the comb.—J. U. ELDRIDGE, *Norwich*.

HILBERT'S NEW BEE-FOOD.

MILK.

One pint of milk, $1\frac{1}{4}$ lbs. of sugar, a piece of salicylic acid as big as a pea. The sugar and acid must be dissolved in boiling water and then added to the milk.

EGG FOOD.

One pint of water, 2 lbs. 3 oz. of sugar, and 43 drops of salicylic solution, are required for the syrup, which when cold must be added to seventeen eggs well beaten up.—E. B.

The salicylic solution referred to is made by dissolving salicylic acid in eight or ten times its weight of alcohol.

[We are obliged by our correspondent presenting the above in a more English form than it took last month; and we trust that several of our correspondents who have written to us respecting it will find the directions sufficiently clear without further explanations.]

BOOKS *v.* EXPERTS.

I was at the Reading Show, and got the third edition of *Modern Bee-Keeping*, and a copy of the *British Bee Journal* for June, and have taken it ever since, and am so much pleased with the number for this month (February) that if I could spare the money I would have a dozen or two and present them to the gentry and clergy in this neighbourhood, and try to induce them to join the society.

I quite agree with your remark at Exeter, that it is of little use attempting to teach people the proper way of managing bees by books, unless we can see the work performed by a practical person, and therefore I should be pleased to try to get up subscriptions to pay an expert to come round this spring and in September to put us in the right way.—JOSEPH COOK, *Fairford, Feb. 6.*

COTTAGERS AND COTTAGE LABOURERS.

Has not Mr. Peel given it to some of us 'cottagers?' Well, I for one do not see why we should not 'smarten' ourselves up a bit if we can. It was put before the committee about my showing in the cottager's class the first show, and it was agreed that I could show in that class; there appear to me to be many obstacles to getting cottage labourers to show at the South Kensington Show. Where are they to get the money from, say if any in my direction had got anything to show? It costs something to go to London and back, besides one's expenses there. Some years I have done very well, but two or three times my expenses with loss of time were considerably over what I got in the way of prizes. Let me give you a specimen of some of our labourers who kept bees two or three years ago. I showed a man how to feed his bees when they had got scarcely anything, and they wintered well, whereas if I had not helped him they would have been starved to death. In the next summer I looked at them with his consent, and when a few weeks after I saw him I asked him how his bees were getting on. 'Oh,' says he, 'you're looking at them threw them back a week from swarming.'—A. W. B.

[We have no objection to the *smart clothes;* we like to see the cottager when he has 'got them on.' We only wish to be sure that the wearers ARE *bonâ fide* cottagers.]

A NEW FEEDER.

The new feeder for stimulating purposes, which I wish to bring before bee-keepers, is made as follows:—A glass tube is drawn to a fine point, and the opening reduced to a convenient size, and neatly rounded off so as to remove all cutting edges. A cork is then selected for the intended bottle, and with a red-hot wire a hole is burnt through, so as to fit the tube tightly, the syrup is then carefully strained and put in the bottle, which is then tightly corked up with the perforated cork and tube; the whole is then made air-tight with a little melted wax. This is then inverted either over the bar-frame hive, or an opening made on the top of straw skep, and the tube thrust through.

The advantage this simple arrangement possesses over other spring-feeders is, that it is impossible for any but a regular quantity to be abstracted by the bees; 2nd, that there is no fear of any robbery taking place; 3rd, in case of accidentally just touching it, the contents will not half be spilled; 4th, its simplicity; and last, but not least, the tube conveys the syrup into the heart of the hive, where it is required for breeding purposes. I need scarcely add that it acts on the same principle as the ordinary bottle and vulcanite: as the contents are abstracted a bubble of air ascends the tube, and is replaced by syrup. I thought it best to bring this little invention before bee-keepers in order that my claim as the inventor might be established, as from its simplicity I probably will reap no pecuniary advantage from it.—JAMES GREEN, *The Cross, March.*

Echoes from the Hives.

Warwickshire, Weston, Leamington.—February 6th was a beautiful spring-like day, bees flying strongly, and on the look-out for flowers. A large mezereum-tree in full bloom, was all alive with bees. I examined some stocks, and am ashamed to say I had let one stock of Ligurians starve to death. They had bred a young queen in August last, and had used up their stores (of which I considered they had sufficient) by breeding very much; there was brood in four frames, and a tremendous lot of bees. They had not been disturbed by me at all. One other stock that had dysentery had lost its queen, so the bees, after being sprinkled with a little thin syrup, were joined to the cast mentioned in my last month's Echo. From the 7th to the 15th instant it rained more or less every day; the 16th was a most beautiful day, and didn't the bees enjoy themselves after being penned up those few days? As far as I could I gave several stocks some candy cake, and intend to give all of them some as soon as I can. I have been making a few hives, and getting sections ready, and packing them away, in hopes, as I think most bee-keepers are, of having a good season, as it is no use to wait till things are wanted.—JOHN WALTON.

Devonshire.—Weather, on the whole, has been very trying for the bees: constant heavy rains accompanied by strong gales. There have been a few fine days, and the busy little workers have been out frequently; little progress has been made, and this month nothing worthy of notice has occurred throughout the county.—W. N. G.

Comptons Lea, Horsham.—Your idea, if carried out, will be a very valuable one, as by this means we shall be able to collect reliable statistics, which in course of time could be used to show the influence of climate on the production of honey. I therefore, with pleasure, send you a return as taken at this place. A daily return would occupy too much space, I therefore send you a summary. In January rain fell on twenty-two days, and the total amount was 3·02 inches. The largest quantity fell on the 16th, viz. ·46 inch. During the same month, in 1882, rain fell on ten days, the total quantity being 1·26 inch, and the largest quantity on one day ·36 inch, on the 3rd. During the whole month the weather was very mild, the highest temperature taken in the shade being 5°·53 on the 1st of January, and the lowest 28°·8 on the night of the 24th. The sun made its appearance on only nine days; on the 15th at 1 p.m. there being a solar halo. The prevailing wind was S.W.; on the 26th, however, there was a violent gale from the N.W. running round to S.W. and lasting the whole night. Early in the month a Cyprian stock commenced collecting pollen from Christmas roses in full bloom. Primroses were in bloom the whole month. Bees were very restless all the month, and consumed a large quantity of stores.—THOS. W. COWAN.

West Norfolk.—Mildness, with continuous downpour, the prevailing character of weather the past four months, causing a gloomy outlook for bee-keepers and others interested in apiculture. Stocks went into winter quarters well supplied by the late crops of white mustard and buckwheat, and are now breeding fairly. Hive-makers are urging country bee-keepers to lay in a stock of hives, sections, &c.; but, judging from the late disastrous seasons, the farmer or cottage bee-keeper hesitates before investing his not over-abundant capital in articles which have lately proved an unprofitable investment. They must take their chance of a good or bad season with their patrons, and be prepared for a heavy demand should kindlier skies help to fill the garners of our favourites.—H. L. L.

North Leicestershire.—So continuously wet and windy has the weather been, that bees have been for the last month pretty closely confined to their winter quarters.

The 21st inst. being warm and fairly still at last gave them an opportunity of visiting the snowdrops, aconites, primroses, and arabis, which had so long been awaiting their assistance. Stocks generally are found strong in bees and short in supply, the natural result of a mild winter; indeed, some few stocks have succumbed to over-breeding, and barley sugar has been found necessary to keep others alive. It may interest some of your readers who are dreaming of Ligurians to hear that a stock to which an Italian queen was given on Oct. 16th last made a good show of young foreigners in a 'turn-out' on Feb. 4th. The stock had not been stimulated. —G. B.

Somerset.—'Somerset is a splendid bee county. Hundreds of orchards, numerous fields of beans, clover, and other nectar-yielding crops, wide stretches of heather, many miles of moors bespangled with white clover, a glorious wealth of ivy, and a splendid assortment of wild flowers, generally supply food in abundance. But bee-keeping is much behind the times, small skeps, badly covered and ill-tended, being the rule; and bar-frame hives and intelligent management the exception. Bees have been very busily at work in the crocuses, &c. during the few bright, mild days we have had lately; and breeding has gone on merrily where they have been well stored. Many poor stocks will probably perish, however, as usual, during the early spring months, as most of the cottagers leave their bees to take their chance, and refuse to spend even a shilling or two on sugar for them.'—C. T.

Sheffield.—'I like the idea expressed by Mr. G. Henderson on page 210 very much, and hope to see it carried out. I very well remember last May opening cold with dry east winds which reached here from over the dry fallow fields of Lincolnshire; after a while the nights began to be warm, and the days very hot—the wind still easterly—and would you believe it, honey was hanging in drops in the flowers, and the bees were lading it into their hives, which was of splendid quality? On sycamore-trees it was running out of the blossoms, which looked as if they had been dipped in a pot of stiff honey. I can produce witnesses of the fact, as I drew the attention of several to it; after that it rained nearly every day until August when we had another bright hot spell. I then noticed, for the first time, black bees working on red clover. I don't think much to this fact, as I believe the honey had risen sufficiently high in the corollas for them to reach it. Something like it may be the reason Ligurians have been seen working on it. My position is about 900 feet above sea-level.'—John Hewitt.

Devonshire.—The weather has been so wet that bee operations are not so forward in Devonshire as the open season led us to expect. Bees seem to have consumed a large amount of their winter stock, and require feeding up strongly. They are, however, carrying in a good deal of pollen, and in a few of my hives young bees are hatching out. Should severe weather not set in I think we may look forward to a great honey-season in this part of England.—Expert.

Norfolk, Whissonsett.—'My bees commenced carrying in pollen to-day (4th Feb.). One stock which I Ligurianized in the autumn has brood in six of the ten frames I wintered them upon. I never saw a more populous colony for this time of the year—so much for the Combination theory! All my hives for the future will contain room for twenty frames at least, standard size.'—Alfred E. Booker Hill.

Essex.—During the past two months we have had almost incessant rains, consequently bees have had few opportunities for a good flight; the thermometer has been fairly steady at about 45° by day. Bees where they have been attended to are in a healthy state, though not overdone with food. Knowing this would probably be the case, I commenced cake-feeding earlier than usual—the end of January. In the only hive I have examined for brood I have found some, sealed, early in February. Our expert informs me he has examined fifteen common straw hives and found but three colonies alive, and of fourteen frame-hives twelve were alive and flourishing, starvation was the cause of death in all cases. I expect to hear of great mortality amongst straw-hives. My bees being much confined to their hives in consequence of the damp weather can take little advantage of the crocuses, stocks, and wallflower, which are now in bloom. Comparing the months of January and February 1882, when we had but one shower during the two months and the season which followed with this year, so far as we have gone, I think we may fairly expect a warm dry summer and a good season, for bees.—Hon. Sec. E.B.A.

Cambridgeshire, Sawston.—Hives in this district appear to be well stocked with bees, notwithstanding that the mild winter has kept them during a great part of the time in a state of activity. In consequence of this there is a general shortness of food, and it has been necessary to supply barley-sugar. My own hives are exceptions, and this is probably because they stand in a cold situation, facing the east, and get no sun in the winter after 11 o'clock. Feeding will be commenced at once, and stocks brought forward as quickly as possible, so that should the weather be favourable the bees may take advantage of the large quantity of charlock which grows in the corn about here, and comes into flower very early. Some cottagers in this village commenced bee-keeping last season, and their first experience was not encouraging, the yield of honey being very small. One good season will do more good in this respect than years of talking and writing.—S. G.

Hants, S. Warnborough.—The weather here has been miserably wet and windy. Daily attention has been needed among the hives to make top coverings secure, and change wet quilt wherever rain could drive in. Crocus blooms are now plentiful, and whenever the sun favours us with its rays they are much visited by bees. Small quantities of Symington's pea-flour sprinkled into these blooms are eagerly carried to the hives, as many stocks have begun breeding.—W. Hunt.

Evedon, Sleaford.—'I am glad to say that my eighty-nine hives are all alive.'—R. Thorpe, *Feb.* 5.

Ely, Feb. 10.—'I have examined my hives this week, and I find them all save one with plenty of bees and stores. One had large patches of brood, and the poor one, with only a double-handful of bees, had a great many newly-laid eggs.—C. G. Greaves.

Fife, Leslie, Feb. 20.—The severe storm of December did little harm to bees in this district, although the ground was covered with snow to a depth of two feet, and in several instances hives were buried up with drift, and required air-ways cut through the snow to their entrances. The frost was very intense, registering on two consecutive mornings 2° below zero. The month of January was generally free from frost, but very wet, and bees had no opportunity of a cleansing flight till the 3rd of February, when all the hives were out in force after a confinement of two months. The past fortnight has been very stormy with high winds, rain and sleet, but with many mild days, and although no blossoms are yet visible excepting one or two snow-drops in sheltered spots, some hives have commenced breeding, and should the present mild weather continue early swarms may be expected. Rainfall for January 4·2 inches; rainfall to 17th Feb. 2·2 inches.—J. L.

Sussex, Brighton, Rottingdean, Feb. 20*th.*—Following up the subject of planting for bees, it may be interesting to many to know that last year a farmer near here took a super weighing about 40 lbs. from a straw skep, while from others he obtained cups of from 12 to 15 lbs. each. These satisfactory results during that almost honeyless season were in a great measure due to the fact that the

said skeppite grew several crops of mustard in succession for his sheep, thus making it answer a double purpose. Until I came into the neighbourhood he always destroyed his bees, but now, after a few lessons, he has even managed to drive them himself. But, like a good many more, he thinks he cannot find time to keep them on any other plan than the skep. However, he can now not only see the advantage of planting flowering crops, suitable for both sheep and bees, but also that it is as unwise to destroy the latter for the sake of their honey, as it would be to kill his sheep to obtain their wool. So far February has been even milder than January. There have not been such heavy rains, while we have had several particularly warm days, bringing the bees out in swarms as it were, so that they have not suffered from the want of cleansing flights. There is hardly a colony but what has begun to breed, and many of the stronger colonies will stand a good chance of doubling their population before out-door work commences in earnest. Considering their forward condition all my hives are protected from draught, and that, together with a limited but crowded brood-chamber, will greatly reduce the chances of chilled brood.—S. Simmins.

Gloucestershire, North, February 21.—Here, after high winds and very heavy and continuous rains, we are enjoying a little seasonable weather, and the bees, though feeding heavily, have ample opportunities for flight, so that, taken all round, they are in a healthy, promising state. One stock, however, since last month has fallen away so rapidly that I don't expect it to survive another week; it is one of the skeps, so I can't tell about the queen, but I don't believe she is there. I fancy—as it is a skep of course it is only fancy—that the queen must have been lost when she was laying freely in the early autumn. The bees were very strong when I bought the skep, and now they die off as though they were all old together and worn out with the endeavour to keep up the temperature of the hive.—Geo. W. S.

Locks, Buckby, Rugby, Feb. 22nd.—Bees in good condition. Have not seen any symptoms of diseases, although it has been so damp a winter. They have been kept dry and warm in their hives; and now February 20th are carrying pollen, on fine sunny days, too. Young bees out at play. The crocus being in bloom, I yesterday, 21st, placed a little pea-meal in the open cups, and, with avidity, they fell to; it is quite amusing to see five or six bees in a cup scrambling for the meal. To-day, 22nd, being dull, cloudy, and no sun, the crocuses did not open, still they were visited by the bees, and the little fellows seemed quite disappointed, not being enabled to find any open to work upon.—J. G. C.

[We are sorry we are unable to insert your return. Please summarise.]

North Northamptonshire, Feb. 23.—Wet and stormy weather has prevented bees showing themselves much, notwithstanding the mildness of the season; in fine intervals they have availed themselves of the snow-drops and spurge laurel; we noticed them very busy on both on the 21st. A cautious peep into the hives has revealed the presence of brood in considerable quantities, but beyond a little sugar-cake given where supplies were clearly getting short, we have not stimulated. We hear of losses amongst the straw skeps, and lose no opportunity of impressing on the owners of such the necessity of constant watchfulness at this critical period, last season having been distinguished in this district by an abundance of swarms and an absence of honey.—J. R.

Cairnie-by-Keith, N.B.—The weather in the North of Scotland has been extremely changeable. One week we have a smart snow-storm, another fresh, but seldom mild. However, bees have enjoyed themselves on several occasions during the present month. On the 9th inst. I examined all my stocks, and I found brood in every hive. One hive had brood in four frames to the extent of about twenty square inches in each frame. Last month I mentioned that I had some of last year's swarms standing in 'Makeshift' hives, this month I find them in fair condition, and I expect them to prosper, having given them more comfortable dwellings. Some of my hives had rather much ventilation, and I find they have consumed a considerable quantity of food. I would like to see a bee-club in every parish; I am sure great good would be the result. With a meeting once a-month the members could learn all that is going on.—A. Cockburn.

County Cork.—During the snow and frost in December not a bee stirred out, all my hives have tunnels from entrance to dummy, and entrances shaded. December 17th, bees very active. Few stirring again till December 25, a sultry day, when they swarmed out in great numbers, and I saw laurustinus, wallflowers, gorse or furze, pansy, and half-a-dozen other flowers and shrubs in flower, and a countryman had a bunch of wild primroses in his hat. Had to do away with the Simmins' 'Draft Preventer,' as the bees got completely blocked. Bees did not stir again till January 18th, a sultry, warm day. February 1st, crocuses nearly in full bloom. January 18th to February 17th, nothing but rain, no bees stirring. February 18th, all hives very active, day warm and sunny, and a few bees carrying in pollen. February 19th, another warm, balmy day, and numbers of bees carrying in pollen of a bright yellow from the furze and crocuses, both being in full flower; also pollen of a light grey colour, from the laurustinus I imagine.—J. Crosbie Smith, *Hon. Sec. County Cork B. K. A.*

Queries and Replies.

Query No. 543.—*Queenlessness.*—A week or two ago I found a number of dead bees on the floor-board of one of my hives, and upon further examination I found they were *all* dead, and I could not discover any trace of a queen or queen-cell. The bees had been transferred into that hive in the spring of last year, and I had seen them take in large quantities of pollen; but though I fed them liberally they never stored up any honey. Would they have remained all this time in the hive without a queen? And can you suggest what could have caused their death? There was plenty of sugar-candy on the top that they could reach, and they had appeared quite lively a few days previously.—A. E. V., *Hanham.*

Reply to Query No. 543.—As the life of the bee in summer is about two months, we may assume that during that time there was a queen regnant in the hive. But, through some cause difficult to divine, when the bees went into winter quarters the stock was queenless, and the bees have gradually died off. Pollen-gathering, without other collateral proof, is not to be depended upon as a sure indication that breeding is going on in the hive. The apparent liveliness might possibly have been caused by robbing bees, who, having discovered a weak and defenceless hive, rifled the stores, sugar-candy, &c., that it may have contained. An examination in autumn should have been made, which possibly might have prevented this vexatious result.

Query No. 544.—I propose to pay attention to the cultivation of the earliest flowers and shrubs, such as crocuses, wallflowers, and berberis. I shall be very glad if you or Mr. Ingram will give us some hints on the propagation of crocuses and other bulbs. Should they be taken up each year, and when? Should each bulb be planted out separately?—C. G. Greaves, *Littleport, Ely.*

Reply to Query No. 544.—Crocus-bulbs may be taken up, and the corms separated, if in large clusters, as soon as the leaves have turned brown and ripened. This will happen in July and August, and the work of replanting may be at that time, or later, until November; plant three bulbs in clusters a foot apart, and allow them to remain for three years, then again divide.

Sow wallflower seed the end of this month (February), or March, and transplant; to render the plants hardy plant on lime rubbish, and lift with a fork during the growing season. The plants by this treatment will become sturdy, and will resist frost better than if succulent.

Berberis aquifolium is better planted in October, unless the plants have been prepared for removal; it is late to effect that operation in February.—W. I.

Query No. 545.—How many years do the working bees usually live?—J. C. H.

Reply to Query No. 545.—The life of worker-bees varies according to their activity. Of those produced in May or June few will be found alive at the end of two months if the weather permit them to be constantly at work. If an Italian queen is introduced into a black stock in spring or summer very few black bees will be found at the end of six weeks, and the whole will have disappeared in two months. The distance bees have to fly, and the flowers they frequent, make some difference in this respect. The life of workers produced in September, passing their winter in a state of repose, may be prolonged till the following April or May.

Query No. 546.—Please oblige by informing me the *names* of the seeds and plants that ought to be sown now for the bees.—J. P., *Uplands, Harrow-on-the-Hill, Feb.* 3.

Reply to Query No. 546.—For bee plants and flowers for present planting and sowing I should suggest: for spring use, Arabis, Aubrietia, Wallflower, Erica carnea, Limnanthes Douglasii, and Epilobium angustifolium album. Verbascum phœniceum, Mespilus canadensis for summer; and for next season's use sow Wallflower this month: Limnanthes in July or August. It is not in great variety, but in large breadths of really good flowers that you may hope to benefit bees. Mespilus canadensis is a deciduous tree (Snowy Mespilus), which may still be planted. It is a good plan to allow turnips to run to seed, and a bushel of turnips would be well employed if there is a dearth of bee-food; if set out now they would bloom in the summer.—W. I.

Query No. 547.—1st, Has the Standard Frame Committee of the B. B. K. A. decided that the top bar shall be 17 inches long; and how the frames are to be kept apart? If by projections at the ends, on opposite sides, will it be as the letter **Z** or the reverse? 2nd. Some recommend that hives be of different colours, so that the bees may more readily find their homes. Is not this a mistake, as we frequently wish to change a colony out of one hive into another, in which case the different colour would defeat its purpose. Is it not better than to have the hives the same?—W. E. B.

Reply to Query No. 547.—1st. Yes. The top bar is to be 17 inches long, but no decision has been come to as to the means of keeping the frames the proper distance apart. 2nd. It is better to have hives painted different colours if they are standing near each other. If you wish to change a colony out of one hive into another, do so with a hive from some distant part of the apiary, or remove the frames into a temporary hive and then put them into the hive you wish them to occupy without disturbing the position of the bees at all.

Query No. 548.—Last autumn in bringing home some stocks transferred from skeps, I shook the combs out of the tapes of two of them. Two days after I examined them, and found that the bees had joined them together, and being late in the season and weather bad, I fed them up sharp. What am I to do so as not to waste brood?—Alfred Clayton, *Welling, Kent.*

Reply to Query No. 548.—Twenty-one days after swarming, when the brood is at the minimum, lift the combs bodily out of the hive, separate with a sharp knife the joined combs, brushing the bees into the hive; re-tape and re-adjust the combs; and if the combs are insufficient to fill the frames use foundation-comb for the remainder. See Abbott's leaflet on *Transferring.*

Query No. 549.—Would you kindly inform me when is the best time to introduce Ligurian queens among the black bees, and the best plan for doing so?—T. Whittaker, *Newcastle-on-Tyne.*

Reply to Query No. 549.—The best time to some people would be when the queens are cheapest, say in October; or when there are the greatest number of young bees; but queens can be introduced as soon as the importing season has begun. The usual plan of introduction is, having captured the black queen, the Ligurian queen is placed in a queen-cage, let down into the midst of the hive, and released after forty-eight hours' confinement. This long process of caging queens is not preferred by all bee-keepers. See *Simmins' Method of Queen Introduction,* which dispenses with the introducing cage.

Query No. 550.—*Zinc Excluder.*—1. Do you think the queen-excluder zinc beneath a section crate tends to reduce the honey yield?—as I notice Mr. Cheshire in the *Journal of Horticulture,* July 28th, 1881, in an article on unfinished section boxes, says:—'If the space between the hive and the rack is all open, the boxes in the centre lying over the brood nest are most quickly sealed, but if the bees be admitted only toward the end of the rack, then the part immediately over the opening will make most rapid progress: this fact, let it be remembered, condemns the zinc queen excluder as always reducing the honey yield.'

2. *Perfection in Section Comb-Honey.*—Could you also tell me the points to be taken into consideration in selecting one pound sections of comb-honey for exhibition purposes? What is considered a perfect section?—H. F.

Reply to Query No. 550.—1. Yes. We consider Mr. Cheshire's statement quite correct. In our own apiary we never insert excluder zinc between the hive proper and the super. Having taken many thousands of one-pound sections on this principle, we have in no single instance found brood inserted, or any other sign of the queen having entered the supers. If a distance of $\frac{1}{4}$ inch be allowed between the brood frames and the rack of sections, there is no necessity for excluder zinc. If, however, it is desired to make the trial, we should advise the oblong perforations to be used in preference to the circular; but with both kinds, when experimenting, we have found considerable loss of bee-life incurred, from the bees, especially in hot weather, crowding into the supers, and being unable to find an exit. With proper management, as removing sections when filled, &c., there is really no necessity for its use. 2. Perfection in sections of comb-honey is considered by most judges to consist in: (1) the sections being *quite* filled and *all* cells capped or sealed; (2) in evenness of surface, there being no projections or bulging, which can only be acquired by the use of dividers which allow of $\frac{1}{4}$ inch only, at top and bottom of the sections, for the passage of the bees; and (3) quality, *e. g.*, whiteness of comb, amber-coloured brightness and transparency of included honey, and *thinness* of the capping of the cells; the latter quality being only obtainable by the *immediate* removal of the sections when completed. For exhibition all sections in each exhibit should match in colour, quality, transparency, and style of work. There must be no granulation, or candying of the honey, to avoid which the sections, when removed from the hives, should be placed in a glazed crate and kept in a rather warm temperature.

Query No. 551.—How can honey-comb in a straw hive (skep) be used to feed bees in another skep which is very light? The bees died a few weeks since in the first-mentioned skep, though there was plenty of honey in it, and the owner, a cottager, wants to use it for the light skep, as soon as feeding may safely begin.—A Constant Reader, *Buntingford.*

Reply to Query No. 551.—It is not always advisable to feed bees with the honey of a hive where bees have died, as there may be in it the seeds of foul brood,

&c. Presuming that objection is waved, place the honey-comb, or the hive itself, above the skep with the live bees in; they will find their way up through the hole, and bring down the honey.

QUERY No. 552.—Is a hive better for having one or two windows in, or is it better without any?—AN 1883 SUBSCRIBER, *Ilkley.*

REPLY TO QUERY No. 552.—Hives are better without windows. If they have any they should be kept perfectly close. If allowed to admit light, the bees are worried by trying to effect an exit in that direction; and sometimes it happens that through the bees trying to take their dead out by the window instead of the entrance, the hive gets clogged, and the lives of many bees are lost.

QUERY No. 553.—I made some barley-sugar according to instructions given in *Modern Bee-keeping*, and in about a week after it was quite soft and sticky. How can I prevent this?—NOVICE, *Sawston.*

REPLY TO QUERY No. 553.—Barley-sugar exposed to the moisture of the atmosphere speedily deliquesces. It should be kept in an air-tight tin or a well-corked bottle. In feeding the bees with it, it should not be given in too large quantities, but in small pieces, as the bees can take it; otherwise it becomes soft and sticky, and the bees get smeared with it.

QUERY No. 554.—Can you tell me how to fix foundation in glass supers so that it won't drop out after putting it on the hive? Dr. Dzierzon advocates letting the bees build upward in glass supers. I have read in another bee-book that such work was harder for the bees, and took them much more time, besides being unnatural. Kindly say which is right.—T. MAYOR.

REPLY TO QUERY No. 554.—Foundation may be fixed in glass supers in the same way as in wooden ones, viz., by pouring a few drops of melted wax along each side. It is advisable, however, to slightly warm the glass or the wax may scale off. If you refer to bell-glasses (which are now quite obsolete):—If you warm the glass, and coat it with a thin film of melted wax, it will be a good plan, giving the bees foothold, and enticing them to commence their combs. It is only in exceptional cases that bees build upwards.

QUERY No. 555.—Is there any way of compelling bees to fill out to the fullest extent sections, as last year all mine were more or less partly filled, some of the combs being cut off and left without any comb at all? Will waxing the sides partly remedy it, or only by filling the entire section with foundation?—ROBERT RANGER, *Maidenhead.*

REPLY TO QUERY No. 555.—If you give fewer sections at a time they will be more perfectly filled. When you remove those which are completed, place the imperfect ones in their places, and they will probably be filled out, supposing, of course, that there is still sufficient income of honey. Waxing the sides is quite unnecessary.

NOTICES TO CORRESPONDENTS & INQUIRERS.

J. TRAYNOR, *Tinahely.*—Members of the Irish Bee-keepers' Association should bring forward complaints against its committee and secretaries at their general meeting. We cannot undertake to be the vehicle of such accusations as are contained in your letter.

TWO SUPPORTERS.—We have forwarded your letter to the hon. secretary of the Lincolnshire Association.

J. COXON, *Ambaston, Derby.*—There is no rule to disqualify any hive at a show not having the standard frame, but the judges, we think, as a rule, give the preference to hives fitted with the frames of the standard size.

CWMRO.—*Bee-stings.*—We have submitted your letter to a medical gentleman, who has kindly replied to it. It will be inserted in our next number.

JOHN HUGHES, *Kington.*—We should strongly advise you to allow the bees in your skeps to swarm, and about twenty days afterwards drive and transfer them to bar-frames. If the bees in the other bar-frames you refer to increase and fill the body hives, the incoming of honey be plentiful, and the weather fine, it will be then desirable to place sectional supers on them.

ECHOES.—As we are going to press, Echoes from Hants, North Wales, East Derbyshire, Wiltshire, Banffshire, &c., have reached us, but, we regret to say, not in time for insertion. Our correspondents have forgotten that February is a short month.

QUERIES.—The preceding reply is applicable to T. Smith, S. Hall, Mellarius, Goonhilly, F. Jellico, &c. Much time would be saved if correspondents would address their Queries to the Editor, not to the Proprietor.

*** ECHO FROM EDITOR'S HIVE.—During the past month bee-writers have shown great activity. Correspondence from all quarters, and from all classes, has poured upon him—especially some very intelligent and interesting articles from cottagers. He is sorry that he has not been able to insert them all this month on account of the numerous Reports of Associations, but hopes to be able to do so on an early occasion.

Title-page and index to volume will accompany our next issue.

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RULES AND REGULATIONS.

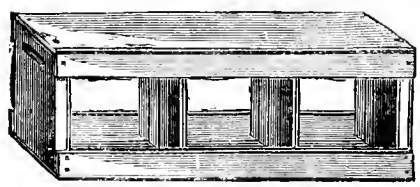
1. All persons intending to exhibit shall return their Entry Forms to the Assistant Secretary, stating distinctly the number of entries to be made in each class, the space which will be occupied by the articles exhibited, and the prices at which they will sell their exhibits. All exhibits to which no selling price is attached will be entered in the Catalogue *Not for Sale*, and be so labelled at the Show.

2. All articles exhibited in competition must be *bonâ fide* the property of the Exhibitor. All honey must have been gathered in the natural way during the current year by the Exhibitor's own Bees. Exhibitors shall sign a declaration to the above effect; and should any infringement of this rule be discovered, all awards made to them shall be forfeited, and the person so offending shall be disqualified from exhibiting for three years. The Committee reserve to themselves the right to submit for analysis any Exhibit of Honey entered for competition in the several Honey Classes.

3. The Association will provide a Salesman to receive Orders and to effect Sales on behalf of Exhibitors. All Sales effected and Orders received, either by the Association's Salesman, by the Exhibitor, or his (or her) Authorised Agent, must be registered at the Sales Office, and One Penny in the Shilling will be charged as Commission on all such Orders taken and Sales effected in the several Classes throughout the Show and the Honey Fair.

4. An Address Label will be sent for each entry made, and the Exhibitor must write his name legibly and distinctly on the reverse side for the return journey, and attach the same firmly to the Exhibit. All Exhibits must be delivered, carriage paid, at the place of exhibition on Exceptions:—Exhibits in the Classes for Honey may be delivered by the Exhibitor himself, or his assistants, on not later than ten o'clock.

5. All Sections of Comb Honey must be glazed or exhibited in crates protected by glass sides. If each section is glazed the glass must be attached in such a manner as to be easily removed, for the examination of the Honey by the Judges in making their awards. Exhibitors are requested to send their Honey for exhibition in Crates similar to the Illustration. Special Labels to be attached to Crates of Honey will be provided by the Committee and forwarded to each Exhibitor.



6. All articles exhibited shall be considered as entrusted to the care of the Committee from the time they are delivered until the close of the exhibition, and that no interference will be allowed with the exhibits during that time without the special permission of the Committee, who will take every care of them, but will not be responsible for any loss or damage that may occur.

7. The Committee shall appoint the Judges, and their decision shall be final in all cases.

8. The Judges shall have the power of withholding any prize in the case of an exhibit of insufficient merit, and shall also have the power of recommending the Committee to give an extra or special prize, to any exhibit which they may consider specially meritorious.

9. No person other than the Secretary and his assistants shall be allowed, on any pretence whatever without the authority of the Committee, to be present during the examination of the exhibits by the Judges, except at the special invitation of the latter.

10. A Judge shall not be allowed to adjudicate in any class in which he may be an Exhibitor.

11. To encourage the spread of information as to meritorious new inventions used in other countries, and which may not be otherwise exhibited, a Special Class (44) will be admitted with prizes for the persons introducing such exhibits; but in the general class for new inventions (43) the Inventor only may compete.

12. In Classes 6, 7, 8, 9, and 11, the Exhibitor will be required to sign an undertaking to supply similar Hives as those exhibited, at the prices entered in the Schedule, to all orders which may be received through the Assistant Secretary for a period of twelve months from this exhibition. The prices of all Hives entered in these Classes must be stated on the Certificate of Entry or the entries will not be received.

13. No Name, Address, or Mark of any kind which may indicate ownership shall be allowed to be placed on the Exhibits entered for competition until after the Judges have made their awards. Any breach of this rule will render the Exhibitor liable to be disqualified.

NOTE.—*Exhibitors are requested to read all the Rules and Regulations carefully, as no Exhibitor will be absolved from the effects of them on any allegation whatever.*

THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 120. Vol. X.] APRIL 1, 1883. [Published Monthly.]

Editorial, Notices, &c.

APRIL.

Two resolutions of great importance to secretaries were passed at the annual general meeting of the Hertfordshire Association. It was proposed by the Rev. E. Bartrum, 'That in the event of the Committee finding it undesirable to hold a County Show this year, the rule binding them to this obligation should be relaxed, and the Committee be authorised to offer prizes for honey and, perhaps, for hives at different Horticultural and Agricultural Shows throughout the county.' In the rules of most County Associations there is a provision made that a County Show shall be held every year. We have long been sensible that such a rule very often presses heavily upon County Associations, which are not generally overburdened with funds, and that a relaxation of this obligation would be felt as a great relief. Too often the whole energies and resources of an Association are devoted to holding a County Show, and the education of the labourers and other members through the visit of the Expert has to be neglected in consequence. We think also that an Association would make itself more felt and appreciated in a county if its prizes were to be obtained at a number of shows in different parts of a county, than if they were confined to one centre, whether fixed or otherwise. At a County Show an Association may be shining very brilliantly for the moment, whilst the rest of the county is buried in darkness during that year. It may, no doubt, be desirable to hold a County Show when favourable opportunities present themselves, and a guarantee or a grant can be obtained for its expenses. Mr. Bartrum's resolution does not, however, extinguish the County Show altogether, but simply gives the Hertfordshire Committee the power of suspending it until it can be held with a fair prospect of success, and without too severe a drain upon the funds of the Association.

Another resolution, proposed by the Rev. F. C. Jenyns, is also well worth the attention of County Secretaries; viz. that experienced Bee-masters should be invited to act as what may be termed *Stationary* Experts, as distinguished from the *Peripatetic* Instructors. The latter can only be expected to make two visitations in the spring and in the autumn. A cottager might well require advice and assistance many times in the interval, and if he could apply to some gentleman residing in his own neighbourhood, it would be a very great advantage to him. If a system of such stationary Experts could be established, so as to cover a whole county, the visits of the peripatetic Expert could no doubt be dispensed with, or used only for the purpose of obtaining New Members and Subscriptions. When we receive the rules for 'Village Clubs,' which are now under the consideration of the British Association's Committee, we shall no doubt be able to call attention to other facilities for instruction which are being devised for the benefit of the cottager. In some counties we hear that the clergy do not encourage the humane system of bee-keeping with the readiness which might be expected from them. A correspondent writes: 'It annoys me to find some clergymen in my county declining lectures *because their people always burn their bees*, whilst others won't subscribe because they don't keep bees themselves.' Hertfordshire is certainly much to be envied in having amongst its clergy pastors of more humanity and less selfishness.

THE MINISTRY OF AGRICULTURE: ITS BEARINGS ON APICULTURE.

For some time past it has been reported that, amongst the Departmental changes about to take place in the Government of the country, Agriculture will have a more special representation than it has hitherto enjoyed, either in the form of a separate Ministry of Agriculture, or as a distinct Department. As there appears to be a probability that this will speedily be 'an accomplished fact,' it is the duty of all interested in bee-keeping to be on the alert, to be 'up and doing,' and to inquire to what extent the industry in which they are interested may be benefited, and how the object of the establishment of Bee-keepers' Associations—namely, the instruction of the cottager and the cottage labourer—can be materially promoted. We conceive that in the prospect of a greater attention being thus nationally paid to Agriculture there is a germ of hope that bee-keeping—which is veritably a branch of Agriculture—will not be overlooked, but will be a means of inducing many more to

engage in this fascinating and profitable occupation; and that it will tend to create a desire that the extension of this 'home industry' will be the means of rendering unnecessary the expenditure of many thousands sterling a-year in honey and wax which might profitably be produced at home.

Let us take a glance at those circumstances which have gradually led up to the recognition of the want in this country of a Governmental interest in Agriculture.

The Science and Art Department of South Kensington has for many years been of great service in providing, at a small cost, students with scientific instruction suitable for practical application in the industrial arts; and more especially in the establishment of schools of design in manufacturing towns and the teaching drawing in elementary schools. The Department likewise has recently turned its attention to Agriculture; and during the session of 1881–2 upwards of seven thousand students have attended classes on the principles of Agriculture; and hence the movement may be said to have assumed a national character, and the official reports show that excellent work has been done by them. But the question arises, Who are these students attending these classes, and how far do they represent the tens of thousands who are engaged in this great national industry? The teaching has not been carried on in country towns and villages, where it would be most needed; but London and the larger manufacturing towns have supplied the great proportion of the students taught in the Department. A large number of the students attending these classes have been assistant masters and mistresses of elementary schools, whose main object is to obtain science-certificates, or to form Agricultural Classes whose members after a course of lectures can earn the Government grant. But it would be idle to suppose that the teachings so given can have much effect in providing practical knowledge of farming operations, of gardening, or of its branches, to those who are more especially interested in them.

In the beginning of 1881 a praiseworthy attempt was made, under the auspices of the South Kensington Department, to bring a knowledge of the minor branches of agriculture to those engaged in them—namely, the sons and daughters of farmers—by the establishment of a Society, which was called 'The Dairy, Poultry, and Minor Food Products Association,' and a course of lectures was given by competent lecturers on the management of the Dairy, Poultry, and Bees. This Association, however, has merged into another Society, bearing a more ambitious title and embracing a wider scope; namely, 'The Institute of Agriculture for the Promotion of Agricultural Education.' This Society has instituted a course of lectures on Minor Food Products and on Tillage Farming; and we are pleased to see that in its programme Bee Management has a prominent place, and that the course of instruction therein has been confided to our intelligent contributor, Mr. F. Cheshire. This course will extend from April 23rd to May 4th. It will be illustrated by diagrams, models, and microscopic preparations; and the operations will be performed with hives of living bees. (The syllabus of lectures will be given in our next number.)

But while we are pleased to give what publicity we can to this well-meant attempt on the part of the Institute to spread abroad a knowledge of apiculture, we venture to assert that it barely touches the margin of practical bee-keeping. Something more than lectures at South Kensington is required to bring the knowledge to the hearths and homes of the cottage labourers of England. The principle adopted by the B.B.K.A. and the affiliated County Associations, by the employment of experts and the dissemination of cheap literature on the subject, has been proved to be far more practical and successful. And in the event of the formation of the Department of Agriculture, we are of opinion that it would not be desirable to renew the request of the British Bee-keepers' Association put forth in February 1880, for the appointment of a qualified teacher of bee-culture, by whom the training colleges and agricultural schools might be controlled, unless the Government will find the funds necessary for the purpose; but rather that the exertions of the various County Associations should be supplemented by increasing the number of experts, who might be sent through the length and breadth of the kingdom to propagate right principles with regard to bees, honey, and wax.

In the event, then, of the institution of this new department, there is work provided for the British Bee-keepers' Association. They must establish a claim for the industry they represent to have some recognition by the Department. To be prepared for this the experience of those countries where the Government takes an interest in bee-keeping should be closely studied, and statistics should be obtained of those engaged in bee-culture, and the amount of honey and wax produced, in the United Kingdom; and this bringing their wants before a nationally recognised body in a well-authenticated form may result in a development of bee-keeping that the most sanguine amongst us could not have anticipated.—G. Henderson, *Ealing*.

END OF VOLUME THE TENTH.

In our March number we dwelt at some length on the reasons which had urged us to issue the *Journal* fortnightly instead of monthly, and to reduce its price from sixpence to threepence. From the numerous letters we have received from our correspondents, we are pleased to find that the proposed change meets with unanimous approval. We have only at present to repeat our promise to do what we can to further the cause of bee-keeping, and, if not to command, to deserve, success.

To our kind friends, who have forwarded us 'Echoes' from their respective districts, we desire to suggest an alteration resulting from our more frequent issue. It is clear that if their present time of forwarding their communications be adhered to, the *Journal* at the end of the month would be overweighted. We should, therefore, be glad if some division of their information could be

arrived at. And we are of opinion that the best method would be that our correspondents in Ireland, Scotland, and the northern parts of England, should forward their 'Echoes' by the 9th of the month, and those in Wales and the southern division of England by the 24th. If this suggestion could be carried out, we should esteem it a great favour.

In the expectancy of their being a large demand for the First Number of our New Series, we guarantee to our advertising friends a circulation of five thousand copies. We have only further to request that all our present subscribers will do what lies in their power to promote the cause of bee-keeping, and to help us in our present venture by endeavouring to secure a larger circulation for the *Journal* by introducing it to the notice of those interested in bee-keeping who have not hitherto subscribed to it.

ABBOTT TESTIMONIAL FUND.

The result of the appeal for this Fund has been a subscription of about 37*l*. A representative committee of the subscribers to the Fund having been formed and convened, it was determined that the testimonial should take the form of a Dining-room Clock, together with a framed illuminated Address engrossed on vellum, containing an alphabetical list of subscribers. These will be presented to Mr. Abbott at the Conversazione to be held at 105 Jermyn Street on Wednesday, April 25th, at 6 p.m. The attendance of the Donors to the Fund is respectfully requested on this occasion.

The following subscriptions have been received during March :—

Capt. Campbell...	0	5	0	F. R. Smith ...	1	0	0
J. R. P.	0	2	6	J. M. Hooker ...	0	5	0
E. D. Ward ...	0	2	6	S. J. Baldwin ...	0	5	0
Rev. H. J. Wilcox	0	5	0	Rev. H. G. W. Aubrey	0	5	0
E. Rawlinson ...	0	2	6				
Capt. P. E. Martin	0	10	6	W. B. Carr ...	0	10	0
Isaac Lake... ...	0	5	0	Messrs. W. & T. Sells	0	5	0
Rev. Jno. Hodgkinson	0	5	0				

BEES AND FLOWERS.

The removal, to a very great extent, of the wild flowers of this country by the enclosure of the land, and the cultivation of corn, and other crops for the sustenance and support of creatures of more importance than bees, has necessarily restricted the area of natural pasturage, and banished, to a great degree, the flora which anciently occupied the ground, and was so well calculated to supply the wants of the honey bee; and, although the men of primitive race, whose bones moulder beneath the tumuli on Salisbury Plain and on the Yorkshire wolds, left no written history, we may fairly conclude that the rude bowls and half-burnt platters that shared in their interments, and still survive, once held the luscious honey gathered from the hollow tree, the natural home of the bee we have now partly trained to more domestic habits. But the wild instinct is not eradicated, as I occasionally find to my cost, for swarms leave the hives, and, as if the matter were predetermined and arranged, whirl away to the neighbouring woods, choosing often some inaccessible hollow, as if determined not to be again held in the restraint of a hive.

The primeval forests that extended far and wide over the Britain of early and prehistoric times would, in the ancient and time-hollowed trunks of some of the trees composing them, afford fitting resting-places for numerous stocks of bees, while extensive tracts of uncultivated land amidst and around them, covered with a flora eminently calculated to supply the wants of the honey bee, provided at once the food and shelter requisite for the preservation of the race.

It is somewhat difficult to realise a state of things like this, in regarding the present aspect of our highly civilised and cultivated country, but there are still occasionally to be found tracts of land in a truly natural state, and the profusion of wild flowers that overspread them, and the hum of the bees over them, tell us what a paradise for bees this country must have been in ancient days.

Having banished, to a great extent, many of the native honey-producing plants, as we increase our stock of bees we must give some attention to the task of providing substitutes, and the preceding arguments are advanced to show that the native flora, once so extensive, is now greatly circumscribed, and may be more so, and that our gardens should be utilised to make up the deficiency when it is known to exist.

There are few gardens so small but what room could be found for beds of Clarkia, Mignonette, Sweet-sultan, Borage. In damp unconsidered spots, the Willow Herbs, especially *Epilobium angustifolium album*, might be introduced.

In Perthshire, the Wood Sage (*Teucrium scorodonia*) was pointed out as one of the best bee flowers of the district. It is a plant that will grow on every wild stony bank. The tribe of plants comprised in *Labiatæ* is one generally visited by bees, and its members should be encouraged. Thymes especially.—Wm. Ingram, *Belvoir*.

THE PRESENT SEASON.

Snow, hail, frost, and the *boisterly wind*, will have made havoc in many hives during the past month. There had been so much activity during the previous mild weather, that food was rapidly becoming exhausted; but the judicious bee-master had taken care to renew the supply and to clear up all *débris* before the change of weather took place. Where this has been done, and proper shading and sheltering provided, the damage will have been slight.

Renewed work has told on the old bees, and all stocks are of course lighter and weaker; but with continuous slow feeding and warmth for the young brood this will soon be set right.

The crocuses will probably furnish the only available pasture for some time to come, as all wild flowers have felt the effects of the bitter blasts; but arabis, palm-willow, and the varieties of berberis, will follow, and, with late primroses, carry us on to the time of fruit-blossoming.

Entrances must be kept clear of dead bees, and sheltered from cold wind and morning sun. In giving extra food keep the hives open as short a time as possible; and let the temperature of the food to be given be raised to about 45° or 50° Fahrenheit by placing the vessel which contains it into warm water.—D. S.

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

The next quarterly conference of county representatives with the committee of the Central Society will take place at 105 Jermyn Street, on Wednesday, April 25, at four o'clock in the afternoon. Notices of motions for this meeting must be sent to the assistant-secretary not later than Wednesday, April 18th. The Conversazione will take place at 6 p.m., when a paper will be read by the Hon. Sec., the Rev. H. R. Peel, on 'Who is the *bona-fide* Cottager?'

Monthly meeting of the committee held at 105 Jermyn Street on Wednesday, March 14. Present—T. W. Cowan in the chair; Rev. E. Bartrum, Hon. and Rev. H. Bligh, J. M. Hooker, D. Stewart, W. O'B. Glennie (Treasurer), and Rev. H. R. Peel (hon. sec.) The minutes of the last committee-meeting were read, confirmed, and signed. The balance-sheet for the month ending February 28th was also read, showing a balance in hand of 48*l.* 18*s.* The Hon. Secretary reported that the Duke of Wellington had kindly granted the use of his Riding-school at Knightsbridge for the purpose of holding the annual show. It was resolved to hold the Annual Show on Thursday, Friday, Saturday, and Monday, July 5th, 6th, 7th, and 9th. The Honey Market Committee presented their report, and suggested that steps should be taken to secure a suitable place, to which samples of honey might be sent for examination. The Hon. Secretary considered it would be advisable to make an appeal to the members of County Associations, and bee-keepers generally, for donations to a fund for the purpose of providing suitable rooms to be used for meetings, the Library, Bee-keepers' Club, and as a depôt for honey. The matter was discussed at considerable length. The committee were generally of opinion that the proposal should include a regular Bee-keepers' Club, which members from the country could use when staying in London. Ultimately it was resolved to advertise for such rooms, to be situated within half a mile of Charing Cross.

A letter was read from the Hon. Secretary of the local committee at Bridgewater, for promoting the Bath and West of England Show, stating the local committee was unable to make a grant to the British Bee-keepers' Association to enable them to arrange for an exhibition of bees, hives, honey, &c., in connexion with the Bath and West of England Agricultural Show.

Resolved,—That the Hon. Secretary be empowered to make inquiries as to whether a suitable site could be obtained at Bridgewater for the holding of an exhibition of bees, hives, &c.

In the event of the Hon. Secretary being able to make the necessary arrangements, it was resolved that the following should be invited to form a special committee for the purpose of managing this show, viz., Rev. J. G. Dangar and W. N. Griffin, Devon; W. H. Dunman, Dorset; C. Kent, Cornwall; C. Tite, Yeovil; Rev. W. E. Burkitt, Wilts; J. Cook, Gloucestershire; L. Oswald Lewis, Carmarthenshire; Rev. J. E. Sale, Herefordshire; A. H. Martin, Worcestershire; and Miss Swinton, Brecknockshire.

The Assistant-Secretary was requested to write to the secretaries of County Associations for general information in regard to the progress made by the competitors in the Economic Apiaries Competition.

The Hon. Secretary called attention to the fact that that several County Associations needed assistance in the way of lecturers; if gentlemen could be found to give lectures in their own or the adjoining counties, it would be of great benefit to these Associations. Lectures might be given at a very small cost if the co-operation of the clergy was secured; they always very generously gave the use of their school-rooms for these lectures free of charge.

The Hon. Secretary reported that he had received a communication from the Secretary of the Bowdon and Altrincham Association in Cheshire, making inquiries as to affiliating their society with the British Bee-keepers' Association. It was resolved that the Assistant-Secretary should attend the general meeting of the Lancashire and Cheshire Association, to urge the members of that Association to divide their society into two separate County Associations.

Resolved,—That in the opinion of this committee it is not desirable to form associations for two counties, but that every encouragement should be given towards the formation of an association in each county throughout England and Wales.

On Wednesday, March 21, Mr. J. Huckle visited Bridgewater, and found an admirable site for the proposed exhibition of bees, hives, and honey, during the time of the Bath and West of England show, in the West Street National Schools, which lie on the route to the show, about a quarter of a mile from the centre of the town. Negotiations are being carried on with the trustees of the school, the result of which will be made known shortly.

COUNTY ASSOCIATIONS.

HERTFORDSHIRE BEE-KEEPERS' ASSOCIATION.

The fourth annual meeting of the subscribers to the Hertfordshire Bee-keepers' Association was held in the Council Chamber of the Town Hall, St. Albans, on Saturday, February 24. Viscount Grimston had been announced to preside, but Mr. G. N. Marten (hon. sec.) explained that his lordship was confined to his house by illness. In the absence of the noble viscount, the Rev. H. R. Peel was, on the motion of Mr. Marten, unanimously voted to the chair.

The chairman expressed his pleasure at being present to preside over the meeting. Having read the minutes of the last annual meeting, he observed that there were two or three points arising out of those minutes which required to be dealt with. The first was as to the admission on the occasion of shows of parishes not strictly within the bounds of the particular county in which the competitions were held.

Mr. Huckle reported that the point had been brought forward for consideration by the Rev. A. Roberts, of Croxley Green, at the meeting of the committee of the Central Association, who had decided to alter their rules so as to take in persons resident on the borders of any county throughout England. The matter had, therefore, been settled not only for Hertfordshire but for the whole of the country.

The Chairman said that the effect of the decision was that residents on the borders of counties would be able to compete in whichever county they chose.

The Chairman read the report, which was as follows:—

'In presenting their report for the year 1882 the committee are pleased to be enabled to congratulate the members upon the continued prosperity of the Association, and the increase of members which has taken place since the publication of the last report. The amount derived from subscriptions during the year 1882 amounted to 98*l.* 8*s.* 6*d.*, against 82*l.* 12*s.* subscribed in the preceding year. This increase of the Association may be mainly attributed to—(1) The appointment of district secretaries, who have obtained new members in their several localities. (2) By visits paid to members of the Association by the expert in the spring months, thereby gaining a knowledge of those who may have commenced (or being desirous of commencing) bee-keeping since the period of his former visit. The cost of the expert's spring visit to the members in 1882 amounted to 25*l.* 11*s.* 9*d*

To facilitate the work of visiting the members in the spring for the purpose of giving them instruction in the management of their bees, the committee consider it would be advisable to appoint assistant experts, allotting a certain district to each. The bee-tent, accompanied by an expert, has been sent to the following local horticultural shows—viz., Frogmore, Bengeo, Hadham, Hoddesdon, Hertford, Potter's Bar, Shenley, and Waltham Cross. The total receipts from the bee-tent amounted only to 11*l.* 4*s.*, mainly owing to the adverse weather which prevailed throughout the season. During the past year the county has been divided into thirty-three districts for the circulation of the *British Bee Journal*. A lecture on bees and bee-keeping was delivered at Potter's Bar in May last by the Rev. J. L. Seager, of Stevenage. Much interest in bee-keeping was excited by this lecture, and through the exertions of Mr. H. Parker, the local district secretary, many new members residing in this locality have been added to the Association. Mr. Seager also gave popular lectures in Sandridge and Codicote, which caused much local interest among the cottagers, and the Association owes him its best thanks for such able and gratuitous help, given specially in the quarter where it becomes most valuable. The Association's annual show was held in the Castle Grounds, Hertford, on Wednesday and Thursday, August 30th and 31st, by the kind permission of A. P. McMullen, Esq. The best thanks of the committee and members generally are due to Mr. A. P. McMullen, Captain R. B. Croft, Mr. J. B. Bootes, Mr. J. P. Sambels, and other members of the Hertford local committee, for their untiring exertions and successful endeavours to increase their guarantee fund, the amount paid over to the Herts Bee-keepers' Association being nearly twice as much as originally guaranteed. Owing to the unpropitious weather which prevailed during both days of the show, a serious loss was only averted by the kind liberality of the residents of Hertford. This exhibition was by far the largest ever held by the Association. The exhibits of hives and bee-keeping appliances were very numerous, and notwithstanding the inclement season, several excellent exhibits of comb and extracted honey were shown in the several classes. The whole of the honey on sale was disposed of at good prices. The prizes offered for competition by the British Bee-keepers' Association were awarded as follows:—Silver medal, Mr. E. Gulston, King's Langley; bronze medal, Miss Gayton, Much Hadham; certificate, Mr. E. Mathews, Royston. The prizes were distributed by the Baroness Dimsdale on the first day of the show. Encouraging reports are received from time to time as to the benefits derived from the Association, and the increased knowledge of bee-culture which is disseminated every year—(1) By the expert's visit to the members; (2) The attendance of the bee-tent at local horticultural and cottage garden shows; (3) The circulation of the *British Bee Journal;* (4) The holding of an annual county show. Several members of the Hertfordshire Bee-keepers' Association were exhibitors, and obtained prizes at the annual metropolitan show of the British Bee-keepers' Association. An examination of candidates desirous of gaining certificates for competency in modern bee-keeping was held at South Kensington on August 7th. Two first-class and one third-class certificates were awarded to residents of Hertfordshire—viz., Mr. G. H. Baines, Tring, and G. Stothard, Welwyn, first-class; and R. Atkin, Welwyn, third-class.

Rev. F. G. Jenyns, with a view of making the usefulness of the Association more felt among the cottagers' class, moved the adoption of the following new rule: 'That the committee shall endeavour to enlist the services of amateurs of experience in different parts of the county to further the work of the expert as voluntary helpers to cottagers, and that a list shall be kept of such volunteers and of the districts in which they undertook to assist, and every cottager being a member of the Association shall know to whom to apply at any time for advice and practical assistance in the management of his bees.'

Rev. E. Bartrum seconded the motion, which was agreed to.

Rev. F. G. Jenyns undertook to act in the capacity set forth in the resolution, for Codicote, Kimpton, and Ayott; Rev. J. L. Seager, for Stevenage, Walkern, Weston, and Little Wymondley; and Mr. Sambels, for Hertingfordbury, Essendon, Bayfordbury, and Little Berkhamstead. It was decided to write to the Rev. G. V. Oddie (Aston), Rev. Canon Kewley (Baldock), and the Rev. T. T. Drake (Gaddesden), asking if they would undertake similar work in their respective districts.

The Earl of Verulam was re-elected president of the Association.

Mr. G. N. Marten having expressed a desire to resign the hon. secretaryship of the Association, Rev. F. G. Jenyns moved the election as honorary secretary of Rev. J. L. Seager, which, having been seconded, was unanimously agreed to.

Mr. Huckle was re-elected assistant secretary,

The names of Mr. F. W. Silvester and Mr. Marten were added to the committee.

The following resolution, proposed by the Rev. E. Bartrum, was carried—'That the committee be authorised, if it seem expedient to dispense with the annual show for 1883, and that instead of such show they be allowed to offer a certain sum in prizes at horticultural and other local shows at various centres throughout the county.'

Rev. E. Bartrum moved a vote of thanks to the chairman. The motion was carried with acclamation, and the chairman having replied, the last item in the proceedings—the drawing for three prize hives—was proceeded with, the first falling to the Rev. C. L. Royds, of Aldenham; the second to a new member, Mr. Brewster, of Glyne Cottage, Barnet; and the third to Colonel E. Smyth, of the Grange, Welwyn.

BERKSHIRE BEE-KEEPERS' ASSOCIATION.

During the past month lectures on bees and bee-keeping have been delivered by the Rev. V. H. Moyle, at Ufton, Rev. Canon Cornish in the chair; Tylehurst, Rev. F. J. Pentycross in the chair; and at Sulhampstead, Mayor Thoyts, High Sheriff of Berks, in the chair: and ten new members have joined the Association. The lectures were illustrated with diagrams and appliances. The High Sheriff evinced a very real interest in the proceedings, and kindly himself handed round the room many of the appliances, &c., and both joined the Association, and contributed to the 'Special Fund for Expert.' It is intended to hold a Honey Fair for Berks in the autumn in Reading.

WARWICKSHIRE BEE-KEEPERS' ASSOCIATION.

The annual general meeting of the above Association will be held at the Grand Hotel, Birmingham, on Thursday, April 5, 1883, at 1 p.m. The chair will be taken by the Marquis of Hertford.—J. N. Bower, *Hon. Sec.*

CARMARTHENSHIRE BEE-KEEPERS' ASSOCIATION.

The first annual meeting of the Carmarthenshire Bee-keepers' Association was held at the Cawdor Arms Hotel, Llandilo, on Monday, March 12, Sir James Drummond, Bart., in the chair.

Mr. L. O. Lewis read the following Report:—

'Carmarthenshire Bee-keepers' Association: the Provisional Committee beg to present the members of the Carmarthenshire Bee-keepers' Association with their Report of the preliminary work done towards the formation of the Association. A circular explaining the objects of the Association and soliciting support has been drawn up and issued; out of 1000 copies printed nearly 700 have already been circulated among the bee-keepers and others in the county likely to take an interest in and support the movement. The expenses incurred for printing and postage have necessarily been somewhat heavy. The efforts of the Provisional Committee have met with the most encouraging success. The

Association now numbers upwards of fifty members, forty of whom have already paid in subscriptions amounting to 23*l.* 1*s.* 6*d.*, including a donation of 5*l.* from the noble President. Several other promises of support have been received. It must be remembered that while the other county Associations are presenting their Reports for the whole of last year, our Association is only now entering upon the first year of its existence. Taking this into consideration, our present condition compares most favourably with that of older Associations. Valuable assistance has been received from Mr. John Davies, of St. Clears, in enrolling members in his neighbourhood. Copies of the *B. B. Journal* for January, February, and March, have been circulated. We regret to find that the *Journal* has in some cases been detained by members far beyond the time allowed, and in a few cases has not been forwarded at all to the members next on the list. We wish respectfully to impress upon the members responsible for this irregularity that, as this useful publication contains much information valuable for bee-keepers, the Association is injured and its usefulness diminished by any unnecessary delay in its circulation. Two moveable comb hives have been purchased to be drawn for at the general annual meeting; also a set of diagrams illustrating bee-culture, for use at lectures and meetings. The parent Society has most liberally promised to defray the expenses of a lecturer for four days, who will deliver a course of lectures on bees and bee-keeping in the county during the spring. Arrangements might with advantage be made for this gentleman to undertake the visiting of members' apiaries in accordance with one of the acknowledged aims of the Association. The object of the Association is to encourage and promote bee-keeping in the county, especially among cottagers and the labouring classes. To carry this out thoroughly funds will be required to provide lecturers and experts to visit all parts of the county, to purchase a bee-tent in which displays may be given of the proper manipulation of bees at the various flower and other shows, to offer prizes for the best honey and wax, and to purchase appliances for the use of the Association. The Association therefore appeals for the countenance and support of all who wish to encourage habits of industry and thrift among the poorer classes.'

The balance-sheet was read, showing that the Association had nearly 14*l.* in hand.

LANCASHIRE AND CHESHIRE ASSOCIATION.

The annual general meeting of the members of this Association was held at 'Cobham's,' Lord Street, Liverpool, on Friday, March 16. There was a fair attendance. The chair was occupied by the Rev. T. H. B. Blundell, the chairman of the committee. Mr. Huckle, the assistant-secretary of the British Bee-keepers' Association, attended the meeting as the representative from the Central Society for the purpose of urging upon the members the desirability of forming two separate County Associations for the counties of Lancashire and Cheshire.

Mr. Huckle explained that the Central Society discouraged the arrangement of having two counties combined for the purpose of forming one association. It had already been found that two counties could not be worked so well as one county; moreover, when associations were formed in one county alone they received greater support from the resident gentry. If separate associations were formed for the counties of Lancashire and Cheshire the Central Society would assist them very materially by sending them circulars for distribution and lecturers free of cost. The Central Society were desirous of having an association formed in every county throughout the United Kingdom. The counties of Brecon and Carmarthen in South Wales had recently formed associations, and steps were being taken to open up North Wales. The Bowdon and Altrincham Society in Cheshire had made an appeal to the British Association, and the committee were of an opinion that it was a suitable opportunity to divide the Lancashire and Cheshire Association.

Mr. Jackson (the hon. secretary) considered it would be very inadvisable to entertain the proposal; the question had been fully considered at the time the Association was formed. It was the general opinion at that time that an association, whose head-quarters were at Liverpool, must embrace the two counties.

Mr. Huckle pointed out that it was very immaterial as to where the secretary resided; but it was an advantage when the secretary resided in about the centre of the county.

Several members supported Mr. Jackson's views. Ultimately the following resolution was carried:—

'That the thanks of the members of the Lancashire and Cheshire Bee-keepers' Association be given to the British Bee-keepers' Association for sending their representative, but in the present position of the society they considered it would not be advisable to take the step proposed.'

HUNTS BEE-KEEPERS' ASSOCIATION.

A series of lectures on bee-culture has been arranged by Mr. White, Hon. Sec. of the Hunts Bee Association, in and around Somersham. The first was held on Friday, the 9th Feb., in the school-room at Redley-cum-Fenton, by Mr. C. N. White, and Mr. B. Ding, of Papworth, Everard. The meeting was arranged for eight o'clock, when there was a good attendance. The Rev. C. S. Beachcroft, curate in charge, took the chair. The chairman having briefly introduced the subject, Mr. White went on to explain the objects of the British Bee-keepers' Association, also the Hunts Bee-keepers' Association, only briefly touching upon the natural history of the honey-bee. He spoke at length upon the management on the bar-frame principle and the use of the extractor. The lecturer had before him a bar-frame hive, an extractor, and several other bee-appliances, which seemed to interest the company.

During the evening the school children sang several songs. After a vote of thanks to the chairman a pleasant evening was brought to a close by the children singing 'God save the Queen.'

DERBYSHIRE BEE-KEEPERS' ASSOCIATION.

A very interesting lecture on almost everything appertaining to bees and bee-keeping was given by the Rev. George Shipton, of Brampton Vicarage, Chesterfield, on the evening of the 12th March in the Masonic Hall. Mr. H. Daniel, the district hon. secretary, had spared no pains in obtaining specimens of bee-gear, and with the additions of hives and appliances sent by Messrs. J. and W. Haywood of Derby, and Mr. Handby of Hasland, the room looked imposing. At 7.30 the Chairman, Dr. Bridgman, in a few, but felicitous, remarks opened the proceedings and introduced the lecturer.

Mr. Shipton began by pointing to the indirect moral influence which he invariably found exercised over the homes of those who kept bees. The dog and pigeon fancier or pig breeder were not remarkable for their industry or refinement; on the other hand, the cottage behind the row of bee-hives was usually a picture and a pattern. Only an outline can be given in a meagre way of the very charming and instructive lecture, replete with points of interest in natural history and botany,—needless to say, a rare treat to the apiarian. Those who did not keep bees would be much surprised at the description of the life of a bee, perhaps, more especially of the queen, raised from a worker-egg, and becoming more fully developed in a shorter space of time than a worker. The eyes, simple and compound; the extraordinary breeding powers of the queen; the wax secretion of the workers, and other physiological matters, were each and all explained. Passing by the fertilisation of flowers and fruits, the lecturer humorously referred to the varying lengths of the 'drumsticks' in the primrose and cowslip, the practical part of the subject was reached. Skeps, at

least the flat-topped ones, were recommended for beginners, as, if the bees were driven instead of killed when honey was 'taken up' they might be made extremely useful. The American section could also be used on the top of the skep instead of the old bell-glass, and as straw was a good wintering medium much might be done with the much-abused skep. The climax of interest, however, was reached when the modern system of bee-keeping was expounded. The ease with which bees might be handled in the 'bar-frame' hive, and the numberless advantages of possessing hives with interchangeable frames, were fully unfolded. Weak stocks might be strengthened, strong ones kept from swarming, queen-cells cut out, or alien queens introduced with the greatest ease. The use of 'foundation,' and its relative value to honey, was tersely put, and also the great saving to be effected by the use of the 'extractor.' Six days after extracting the combs were completely filled again, the benefit being double—the quality of honey and the saving of comb. The stress laid on the necessity of breeding with the best queens—if either profit or pleasure was the object—brought the lecture itself to a close, but not the meeting. After a vote of thanks to the lecturer and the chairman many questions were asked, all which Mr. Shipton satisfactorily disposed of.

The Hon. Secretary took the opportunity of stating that he had received an intimation from Mr. Peel that there was a probability that Derbyshire would be again benefited by another lecturing tour—if it would be appreciated.—H. V. Edwards, *Hon. Sec., Mackworth.*

BRECONSHIRE BEE-KEEPERS' ASSOCIATION.

You will be glad to learn that our association is thriving, and that it has kindled an interest in the subject which the most sanguine of its promoters did not dare to anticipate. The few intelligent farmers who last year adopted bar-frames were almost, without exception, successful; this element has had its usual result in adding to the brethren of the craft.

Through the great liberality of the Rev. H. R. Peel, we hope to have a series of lectures in the principal towns and villages during the spring months, and thus thoroughly to get the subject before the people. As an industry it has been cultivated but partially, although from personal knowledge I can record that the number of hives compare favourably with those of neighbouring counties. We have, too, the honour of being the first Society affiliated to its parent in Wales. The bees in the few hives I have examined have wintered surprisingly well, and now they are wondrously active, rolling in pea-flour during these few past days (March 5).—An Amateur.

SOMERSETSHIRE BEE-KEEPERS' ASSOCIATION.

It is proposed to form a Bee-keepers' Association for this county in connexion with the British Bee-keepers' Association. The Rev. Walter Hook, The Rectory, Porlock, has kindly consented to act as honorary secretary.

ALTRINCHAM AND BOWDON DISTRICT BEE-KEEPERS' ASSOCIATION.

The first annual general meeting of this Association was held on Friday evening, February 16, 1883. The Rev. Canon Gore occupied the chair. There was a very fair attendance of members. The rev. chairman briefly addressed the meeting, and called on the Hon. Sec. to read the annual report.

The Report stated that a few months ago three or four friends met together to discuss their several ways of managing bees, when it occurred to them that a society could be formed in the district. After consulting a few others a committee was formed, and the project being favourably received by the public, it was decided to hold a bee and honey exhibition, and to ask the Altrincham Agricultural Society for permission to hold it on their ground the same day as the Agricultural Show. The consent of the Society having been given, the result proved that it was a wise decision. Numbers visiting the bee-tent, and many persons came purposely to see the bee and honey exhibition: some of the exhibits would have done credit to any Show in the country.

Mr. W. Broughton Carr, of Higher Babbington, Cheshire, in the tent of the Lancashire and Cheshire Bee-keepers' Association (which was hired for the occasion), caused great interest by showing the art of transferring bees from one hive to another, &c.

The question of amalgamating with the Lancashire and Cheshire Bee-keepers' Association has been before the Committee, and it has been decided to remain as they are, a district Association.

Mr. Parker, the late treasurer, submitted a statement of accounts. The receipts from all sources amounted to 56*l.* 13*s.* 10*d.*, and the expenditure to 29*l.* 15*s.* 1*d.*, leaving a balance on hand of 26*l.* 18*s.* 9*d.* The report and balance-sheet were adopted, as also a code of rules. Mr. Parker proposed, and Mr. Bush seconded, that the question of affiliating with the Lancashire and Cheshire or the British Bee-keepers' Association, be referred to the incoming committee. The president, vice-presidents, hon. treasurer, hon. secretary, and committee were elected.

MARLBOROUGH AND PAWSEY VALE AGRICULTURAL SOCIETY.

The Marlborough and Pawsey Vale Agricultural Society will hold its annual show this year at Newbury, on June 19th and 20th.

Could not the Wilts, Berks, and Hants Bee-keepers' Associations unite in getting up a really good bee-show on this occasion? An interest in the matter should at once press the above proposal on the prospective hon. secretaries, as no time should be lost in laying the matter before the committee of the M. and P. V. Society, and soliciting a grant towards expenses.—A Bee-keeper *on the borders of Wilts, Berks, and Hants.*

FIFESHIRE BEE-KEEPERS' ASSOCIATION.

The annual general meeting of the above Association was held at Markinch on Saturday, March 17. The chair was occupied by Mr. W. Page, president of the Association. The Secretary read the minutes of the last meeting, which were adopted. The prize list and rules for the annual show of 1883 were revised and amended. It was resolved to hold the show this year in the county town, Cupar Fife, on the 7th and 8th of August.

CALEDONIAN APIARIAN SOCIETY.

Minutes of first quarterly meeting, held in M'Innes' Hotel, Glasgow, 21st March, 1883. Present—Messrs. Sword, Cameron, Young, Fisher, Hutchison, Kinloch, Armstrong, Johnstone, and R. J. Bennett.

On the motion of Mr. Sword, Mr. Cameron was called to the chair. The Secretary read letters of apology from Mr. Wood, of Benmore, and Mr. Paterson, of Struan. The minutes of last meeting were read and approved of. The Secretary read the following report:—

'The past year, on the whole, was very unfavourable to bee-keepers. In early spring hopes were raised and swarming began early enough; but the best honey-gathering months we had rain—rain which completely baffled the best efforts of the bees to fill their body-boxes, very few

supers being obtained. In some places where there were over one hundred hives at the heather, there was scarcely a super completed; while if we compare 1881 in the same district, two or three hundred supers were obtained from the same quarters in the same time, thus showing how necessary it is to have good weather for the success of our bees as well as the ingathering of our own harvests. Improved apiculture has long been eagerly sought after north of the Tweed; the Octagon hive has been wrought with success for more than two centuries. Apiarian Societies existed in Ayrshire and other parts of Scotland long ago; wax-sheets and plates for their manufacture were formed and used as indispensable in all well-regulated Scottish apiaries for the last twenty years, and their value seems to have been much more highly appraised than in Germany, the land of its birth, by Dzierzon and its leading spirits.

'The Society may now be said to have fairly served its apprenticeship, beginning its course on the 28th Oct., 1874, having held one or more exhibitions every year since at the following places: City Hall, Glasgow, 1875; Kibble Palace, Glasgow, 1876; Edinburgh, in connexion with the Highland and Agricultural Society's Show, 1877; Dumfries, 1878; Perth, 1879; Kelso, 1880; Stirling, 1881; and Glasgow, 1882; and this year it is to be held at Inverness, so that by our connexion with the Highland and Agricultural Society we may be said to fairly represent old Caledonia, doing a great amount of good to cotters from north to south and from the east to the west of our land. The Highland and Agricultural Society now so far recognise this fact that an annual grant of 20*l.* and two silver medals are awarded us. Our apprenticeship having been faithfully served, visiting in turn all the large centres of population in the country, we look forward with hope to a long and useful career. Already we have been of some use to our affiliated Societies in the case of Perth, Falkirk, Dunoon, and Rothsay, where we have been able to give them one of our silver medals, and the loan of our bee-tent without incommoding ourselves, and thus showing to the county districts how easily the bees can be handled if we only know the way.

'The membership, we are sorry to say, has never been steady, but rising and falling with the barometer, according as we had a good or a bad year; but it embraces Aberdeenshire, Invernessshire, Perthshire, Stirlingshire, Lanarkshire, Renfrewshire, Argyllshire, and Dumfriesshire, so that we certainly have a long pull, if we only pull altogether there is nothing to hinder us being one of the most useful Societies of the kind in the country.

'In conclusion, let us add, although Inverness is a long way from Glasgow, we hope we will have as successful a meeting there as any place we have been. Mr. Paterson of Struan, and Mr. Cameron of Blair Athol, are on the local committee, and we know and appreciate the qualities of both these gentlemen as advanced apiarians, not only devoting much time, but lending their purse to the aid of the Society and the advancement of the science.'

The prize schedule for the Inverness show was discussed, seriatim, and passed. Mr. Paterson, of Struan, and Mr. Cameron, of Blair-Athole, were appointed stewards of the Inverness show; and Mr. Bennett said he would be in Edinburgh shortly, when he would call on Mr. Menzies and make final arrangements before printing and issuing the prize schedule.

COUNTY CORK BEE-KEEPERS' ASSOCIATION.

The first annual meeting of the members of this Association was held at three o'clock on March 8th, in the Mayor's Office—his Worship the Mayor in the chair.

The Secretary (Mr. J. Crosbie Smith) read the report as follows:—

'In presenting the first annual report the committee of the Cork Bee-keepers' Association beg to congratulate the members on its success, and the spread of modern bee-keeping in the County of Cork during its first year of operations, and which it has every reason to believe will be much extended this year if sufficiently supported. The first show of the Association was held in the Corn Exchange, Cork, on April 29th, 1882, but the day was the most severe during the year, and the attendance was very limited, and there was consequently a considerable loss on the show, but it did much good in drawing attention to the subject of modern bee-keeping. The Rev. Thomas Lindsay came specially from Limerick to lecture. The second show took place July 6th and 7th, in conjunction with the Cork Agricultural Society, to which the committee present their best thanks for a donation of 5*l.* towards the expenses of the Bee Show. The bee tent of the Irish Bee-keepers' Association was used, and the lectures and manipulations with bees were a source of very great interest and attraction to the large numbers of visitors to the tent. For a Bee Show, the unprecedented large amount of 18*l.* 15*s.* 6*d.* was taken, and we believe exceeded that of any show hitherto held in Ireland. Lectures were given frequently on both days by Messrs. Alfred Davis and J. Crosbie Smith. P. A. Roche and D. Costin, assistant-gardener to Mr. T. W. Strangman, won the prize for driving, capturing the queen in an expert manner. Mrs. Bainbridge, Miss Pike, and Mr. W. H. Ford kindly lent bees in straw skeps and bar-frame hives for manipulations. Messrs. John J. Smyth and T. H. Marmion acted as judges. The committee beg to present their best thanks to all these ladies and gentlemen who so kindly assisted them at both shows. The honey season of 1882 has been the worst in the annals of bee-keeping in the British Isles, and also in many parts of Europe and America, so bee-keepers should not be discouraged, but hope for success this year. The treasurer's statement shows an income from all sources of 47*l.* 13*s.* 7*d.*, out of which was expended 46*l.* 10*s.* 9*d.*, leaving a balance of 1*l.* 1*s.* 4*d.*'

IRISH BEE-KEEPERS' ASSOCIATION.

In consequence of the determination of the Royal Dublin Society to hold no spring show this year on account of the prevalence of the foot-and-mouth distemper, the show of the Irish Bee-keepers' Association advertised in the March number of the *Journal* is indefinitely postponed.—E. D'Olier, Jun., *Hon. Sec. pro tem.*

SHOWS AND BEE TENT ENGAGEMENTS.

May 16, 17, 18.—Devon and Exeter Bee-keepers' Association. Wednesday, Thursday, and Friday, at Bideford, in conjunction with the Devon Agricultural Society.

June 19, 20, 21.—Worcestershire Agricultural Show.

June 20, 21.—Agricultural Show at Truro.

July 11, 12.—Lincolnshire. At Gainsborough, in connexion with the Lincolnshire Agricultural Society. Stephen Upton, Secretary.

July 16 to 20.—Royal Agricultural Show at York.

July 24.—Agricultural Show at St. Ives.

July 25, 26.—Leicestershire Agricultural Show at Melton.

July 26.—Waltham Cross Horticultural Show.

July 29.—Horticultural Show at Rockingham.

Aug. 6 & 7.—Northampton Horticultural Show.

Aug. 14.—Clay Cross Horticultural Show.

Aug. 28.—Long Buckby Horticultural Show.

KENT ASSOCIATION.

June 30.—West Kent Horticultural Show, Chislehurst.

July 3.—Rochester and Chatham Horticultural Show at Rochester.

July 7.—Eltham Horticultural Show.

July 11 & 12.—Blackheath Flower Show.

Aug. 1.—West Malling Horticultural Show.

Aug. 2.—St. Mary Cray Horticultural Show.

Aug. 23.—Sevenoaks Horticultural Show.

SUSSEX ASSOCIATION.

July 25.—Dane Hill, near Uckfield.

July 25.—Worth, near Crawley.

Aug. 22.—Cuckfield.

Aug. 29.—West Grinstead.

Aug. 30.—Worthing.

Aug. 31.—Pulborough.

Sept. 5.—Isfield, near Uckfield.

HERTS ASSOCIATION.

July 26.—Waltham Cross Cottage Garden Show

ANNALS OF COUNTY ASSOCIATIONS.

No. II.—THE DEVON AND EXETER BEE-KEEPERS' ASSOCIATION.

By W. N. Griffin, *Hon. Secretary.*

Before tracing the history of this Association it will be interesting to notice two points which make Devonshire famous in the annals of bee-keeping; in this county without doubt commenced the movement in apiculture which was developed after a time with rapid strides throughout the country. It was in Devon, with Exeter as its centre, that probably the first Apiarian Society in the world was established, being in full work at the close of the last century; how long the Association was in existence it has not been possible to ascertain, the information having been gleaned from a series of letters by the then secretary, J. Isaac, published in Exeter in 1799. The preface runs thus: 'To the Apiarian Society, who for the benefit of their country, and especially of the poor cottagers, have stood forward in defence of the bees, whose labours in cultivating the native sweets of the uncultivated lands have not yet been appreciated, this small treatise is with all possible deference inscribed by the Society's most devoted servant.' This Association must have been at work some years, as in his first letter he remarks, 'For however deeply rooted the prejudices of many may be, I perceive they begin to give way to the advances of the above-mentioned Society'; and again, 'Other societies, by their laudable exertions, have thrown light on the subject of agriculture; and the English farmer now cultivates his fields in a neater manner. Similar will be the effect of the proceedings of the Apiarian Society, which has the honour of being the first establishment of the kind in the known world.'

Devonshire is always proud of its eminent sons, and from a bee-keeper's point of view men may rightly reverence the memory of the late Thomas Woodbury, whose name is a household word amongst bee-keepers throughout the world; he may justly be considered the great patron of bee-keeping. To him may be given the credit of inventing the original bar-frame hive, and of bringing this subject prominently before the public in the present century; for about twenty-five years he patiently carried out his researches in Exeter, assisted by Mr. S. Bevan Fox, and the veteran bee-keeper, Mr. George Fox, of Kingsbridge. It was to Exeter that the Ligurian bee was first brought, when in 1859 Mr. Woodbury, learning of the superiority of the *Apis Ligustica* over the ordinary black bee, introduced this new race into England. In 1871 the bee-keeping community were deprived by death of their most eminent leader; his name, however, will ever remain fresh as that of the originator of improved apiculture.

It may be as well to review the circumstances which brought the present Devon and Exeter Bee-keepers' Association into existence; with the commencement of the *British Bee Journal* in 1873 came the renewed desire to improve bee-keeping in the county of Devon; an attempt was made to start a bee-club in Alphington, but it resulted merely in the circulation of the *B. B. Journal* amongst four enthusiasts. In the following year a Village Bee Club was formed at Dawlish, which worked for several seasons, and received much support from Mr. C. E. Fletcher; but in 1878 it ceased to exist when that gentleman left Devonshire. In 1875 Mr. Abbott, writing on the formation of proposed county Associations, offered to publish the names of any gentlemen willing to support such a movement in their respective counties; the only response from Devon came from Mr. W. N. Griffin, and in the autumn of the same year, talking over the subject with Mr. Abbott at the Crystal Palace Show, Mr. Griffin was prevailed on to move in the matter, and to act as honorary secretary *pro tem.*; letters were written to those supposed to be interested in the cause. As soon as twenty names were secured a public meeting was called, and on the 17th of November, 1875, eight ladies and gentlemen met in Exeter, and 'The Devon and Exeter Bee-keepers' Association' was then instituted, with Mr. S. Bevan Fox as President; C. E. Fletcher as Honorary Treasurer; and W. N. Griffin as Honorary Secretary. For the next three years came very up-hill work, the committee having to contend with difficulties and to grapple with many prejudices; few, then, knew anything of the subject, and cared less to be taught; moreover, everything was new, the officers having to learn by degrees what machinery was necessary for the success of the objects they had in hand. As will be seen from the *Bee Journal*, when Mr. Abbott alluded to the societies that had then been already started, he said, 'That Mr. Griffin was too sanguine as to the success of the Association in Devonshire.' Lectures were delivered from time to time; and in 1876 the first bee show ever known in the county was held in connexion with the Exeter Horticultural Society. In 1877, owing to the disastrous season, the idea of holding an exhibition for that year was abandoned. In 1878 the committee were determined to bring the question of bee-culture prominently forward, but as this was considered a somewhat dry subject to the general public, it was therefore found necessary to hold meetings of an attractive character. A public tea was given in the spring, followed by a select programme, performed by the Orpheus Glee Club, and interspersed with papers and short addresses on apiculture. So successful was this endeavour that it is often alluded to as the famous 'Bee Tea.' In this year the services of William Horton Ellis, Esq., J.P., were secured as President; and, with the enthusiasm of his brother-in-law, the late Mr. Woodbury, he has followed in his footsteps in endeavouring to advance this much-neglected industry. At the Autumn Show valuable prizes were offered, including a handsome vase, value 5*l.*, by the President. At this time the Dawlish Society was merged in the County Association. It was not till 1879 that the previous work of the Society was beginning to show returns, and that the committee were in a position to extend their sphere of usefulness throughout the county; it was also not until this year that the committees of Horticultural Societies could be prevailed upon to allow manipulations with living bees by the Bee Association. Tiverton has the honour of being the first place in the county where such operations were conducted, followed closely by a display in connexion with the Royal Western Horticultural Society on the Hoe at Plymouth. In the spring of that year Mr. F. C. Cheshire undertook a lecturing tour for the Society throughout the county; but the meetings were only sparsely attended. By the year 1880 the committee were determined to try an exhibition on its own resources, and held a show at the Exeter Diocesan Training College, a military band was in attendance, special prizes were offered by the Mayor and Sheriff of Exeter and others; the cloisters and rooms where the exhibits were arranged were tastefully decorated with plants and flowers, kindly lent by Dr. Woodman, of the Exeter nurseries. As an exhibition it was a great success, but the attendance was not as good as was expected. However, nothing daunted, the committee tried a similar experiment at the Winter Gardens, Torquay, the following year. The committee, finding that in such a movement unity is strength, affiliated the Society to the Central or British Bee-keepers' Association in 1879. Passing on to 1881 it was found that the work of the Association had greatly increased; and owing to the failing sight of Mr. W. N. Griffin it was deemed necessary to appoint another honorary secretary, and the Rev. J. G. Dangar, M.A., was elected in conjunction with Mr. Griffin. In a paper like the present it would be out of place to enumerate all the

various undertakings of this Society, attention being mainly called to such as will trace its history, and will in any way be of service to those who may wish to establish such societies in other counties; suffice it to say, that at the following places either exhibitions have been held or lectures delivered: Exeter, Tiverton, Plymouth, Torquay, Barnstaple, North Tawton, Ottery St. Mary, Heanton, Satchville, Halberton, Bovey Tracey, Whipton, Tipton St. John's, Alphington, Landrake, Charlton Flynton, and Hele, and also in connexion with the Devon Agricultural Society, the West of England Fat Cattle and Poultry Society, and other important Associations. In 1882 the Council had made arrangements to push its operations further west, and hold shows at Launceston and Liskeard, in the county of Cornwall, but finding that the two counties would be too large a sphere for their labours they gladly welcomed the proposition of Mr. Kent to start an Association for Cornwall, and retired from the ground which the D. and E. B. K. A. had occupied; they did all in their power to assist the new Society, feeling that by furthering this new adventure they would be materially aiding the cause of apiculture. The Rev. J. G. Dangar was sent by the central Society in London on a special lecturing tour through Cornwall in the spring of 1882 in order to break the ground for the new Society. The D. and E. B. K. A. have been instrumental in starting other Societies, especially in Ireland. In the autumn of 1882 the Council, desirous of inquiring into the progress of apiculture amongst its members, held a bee census, requesting them to state the number of stocks owned by them on the 11th November, 1882; and further, asking them to name how many were in bar-frame or in straw hives. Out of the 176 notices sent out, it was found that eighty-nine bee-keepers owned 732 stocks; 510 in bar-frame hives, 192 in straw hives, nineteen in box hives, five in Stewartons, five in Nutt's collaterals, and one nest hive. The Council have instituted several dépôts and emporiums in various parts of the county to enable members to procure all necessaries for the apiary in their respective districts; and have also made arrangements for the disposal of members' surplus honey, knowing full well that this is one of the best modes of assisting them. For some years the manipulations have either been carried out in the tent of the London Society, or by adapting an ordinary tent with a screen; but by the summer of 1883 the Council hope to have their own tent, built on a new and improved design; they have also appointed an honorary expert, Captain H. P. Gilbert, R.N. It is interesting to note that at the Barnstaple show last summer, as there was some difficulty in providing a site for the tent, it was erected in the main street, outside the market, the Mayor and Superintendent of Police having kindly consented to divert the traffic; and whilst the bee-driving was proceeding, the queen being young, started off with a swarm and pitched on a scaffold pole, this being mistaken by the general public for an artificial swarm.

A curious conversation took place at the Plymouth Show in 1879, when a lady, inspecting a honey extractor, remarked, 'And what is this?' Having been informed that it was a honey extractor, and being rather impetuous, she did not wait for further explanation, but at once remarked, 'Dear me! What an interesting machine! I suppose you put the flowers in and extract the honey!'

The patron, the Right Hon. the Earl of Devon, takes great interest in the work; and one of the Vice-presidents, Lord Clinton, has offered to provide any of his tenants, willing to start bee-keeping, with bar-frame hives; they are to pay him back for the outlay from the sale of their honey.

The D. and E. B. K. A. in its present form was one of the first county Associations started, and it is hoped that their operations may result in inducing bee-keepers to start associations in counties which have not yet taken up this matter on an organized basis, so that this much-neglected industry may ultimately flourish and abound.

COUNTY AFFILIATED ASSOCIATIONS.

Reports to hand show the following order in regard to the number of members:—

Hertfordshire	328	Essex	138
Warwickshire	247	Cornwall	134
Norfolk	231	Derbyshire	126
Kent	210	Dorsetshire	123
Wilts	185	Leicestershire	103
Berks and Bucks ...	180	Hampshire and Isle of Wight	82
Sussex	175	Yorkshire	80
Devonshire	170	Breconshire	53
Surrey	150	Shropshire	53
East of Scotland	147	Oxfordshire	48
Lancashire & Cheshire.	143		

USEFUL HINTS.

FEEDING.—The month of March has been a trying one for bees and bee-keepers, and has fully tested the prescriptions and advice of those who have been relied on as advisers in matters relating to bee-culture. 'Bitter' weather has prevailed during the whole month, and the experiences that have resulted would be invaluable to the bee-world, as they doubtless are to individuals, if they could be collected and published, and the public could be induced to read, and study, and profit by them. In bee-keeping, as in matters of every-day life, every man has 'fads' of his own, and though it may not be worth while to seek their origin, it is absolutely necessary to accept their existence in endeavouring to account for the divergence of opinions as to the best mode of doing anything. In no branch of bee-culture is this more evident than in that under discussion: 'feeding' is a science in itself with many divisions and subdivisions, each with a variety of bearings subject to influences which none can immediately foresee, but which it is imperative should be provided for in endeavonring to secure the highest average of results. The objects in view in feeding bees may for present purposes be legitimately considered two-fold only, viz., for their sustenance, and as a means of stimulation to the increase of their numbers. Feeding for the sustenance of bees may be of importance as an immediate temporary necessity in unfavourable weather during their season of activity; or it may be by way of provision for winter, their recognised season of rest, but for stimulative purposes it can only be necessary when it is considered advisable to hasten or continue the production of brood and bees in advance of, or beyond, the natural breeding season. These observations are called forth by a correspondent who has requested 'that some directions be given in the present issue of the *Journal* about feeding during this [March] bad weather;' and he wishes to know 'what is best to feed with while the bees are confined' [weatherbound]. He says further, 'If barley sugar be supplied the brood may perish, and if syrup be given the bees must have a cleansing flight in spite of weather, and so be lost;' and he is evidently in a quandary, afflicted with that sometimes troublesome kind of wisdom which is often too freely gathered from 'a multitude of counsellors,' who, had they been '*cooks*,' would evidently have 'spoiled the broth.' Now it is quite certain to my mind that if the writer means that bees will starve with barley sugar available in the hive he is greatly in error, for it is in itself the best sweet that can be given to bees, and is sufficiently stimulative to promote breeding when pollen or its substitute can also be obtained by the bees; and there is only one danger in its use, viz., that if too much be given at a time it may liquefy faster than the bees can take it, and so run about the hive and clog the bees, or run out of the hive and invite robbing; but that is a matter that may easily be controlled by only giving to the bees daily during bad weather just as much as they are capable of taking up daily. But if for barley sugar

we read 'sugar cake,' which is a distinct thing from barley sugar, and ought to be called by its own name, the case is somewhat different, though even then the danger is very slight, and may easily be overcome. Practically, the chief point of difference between barley sugar and sugar cake lies in the fact that the former will liquefy readily by absorption of moisture from the atmosphere, and the latter will not. The former seizes greedily every atom of water that comes into contact with it in vapour form in the hive, and absorbs it as readily as will salt, while the latter remains almost unaffected by it, and will scarcely melt at all, except water itself be added to it. Now it is only too well known in this moist climate that the great obstacle to the successful wintering of bees has been the actual *excess* of moisture in hives. Indeed, so great was the quantity generated in the form of vapour, and condensed by the coldness of the single walls of hives, that one manufacturer, Mr. W. Carr, Newton Heath, Manchester, went so far as to invent a grooved floor-board for the purpose of conducting it to the entrance, and preventing it lying in pools or running about in the hive; and one of my first efforts in improving the construction of hives was to place porous quilts upon them in lieu of a wooden crown-board, so that the excess of moisture might have means of escape other than by the hive entrance, and not be forced to condense in cold weather within or about the bee-nest. The introduction of the quilt, like many other of my innovations, was not brought about without a hard struggle. It had to be forced upon the public at first, but is now recognised almost everywhere as an absolute necessity in hive sanitation. Following on the lines laid down in respect of the quilt as a means of ridding the hive of its moisture came the means of preventing loss of heat and condensation of vapour; and, like many another hobby, it has been over-ridden, until we find complaints arising of 'water-dearth,' or, in other words, absence from the hive of the moisture which is essential to bee life, and which in vapour form is absorbed by the larvæ, and prevents the drying up of the food prepared for them by the bees. But to return to the sugar cake, though loth to leave the subject in hand, it will be evident to the meanest capacity that if the escape of the moisture of the hive be in some measure prevented by the introduction of a means for its condensation, the so-called water-dearth will be prevented also, and this may very easily be brought about by causing the hive, or some part of it, to be cool, so that in cold weather, when bees cannot safely go abroad, the vapours may condense upon it, and they may find sufficient water at home. It seems easy now to reconcile oneself to sugar-cake for general winter and chilly spring feeding; but let me beg of the readers of this *Journal* not to rush wildly to extremes in causing the condensation of vapours within their hives. As has been hinted before, herein excess of moisture is a curse to a hive, and will lead to greater evils than have been produced by carrying the conservation-of-heat theory to long lengths without a due understanding of the inner merits of the subject. Especially should caution be used in selecting the position in which the condensing medium should be placed. It is well known that by inverting a glass tumbler over the central feeding-hole dew-drops will form in it in cold weather, and these but too often run down into the bee-nest and do mischief, for which reason top condensation is not advisable. Glass windows are also condensers, but there is the evil that they are not moveable, and cannot be removed when not wanted. Glass in a dummy at the back of a hive, or at the side where the back is not available, offers the simplest solution of the difficulty, because it could be removed in a moment, and because its condition could be seen without disturbance of the bees. This it is in the power of every one to arrange for himself, it is only requisite to cut (or bore) a large hole or two in the upper part of the dummy, and to stick a piece or pieces of window glass on the outer side to ensure success. An experimental arrangement might be made by covering the feed-hole in the crown of the hive with a kind of saucepan-lid, under which has been placed a piece of tea-lead or stout tin-foil in which a hole corresponding with the feed-hole has been cut; but to prevent the condensed moisture from saturating the quilt, the edges of the foil or lead should all be turned up so that a shallow reservoir should be formed under the saucepan-lid. The rising (because heated) vapours striking against the 'lid' would then condense, and run down into the reservoir, and occasional examination would soon discover whether the condensation was in accordance with the necessities of the bees or otherwise, and the arrangement could be altered accordingly.

Now with regard to syrup feeding, which, with due precautions, has always appeared to be the most commandable, it is not quite clear, as stated, that danger would arise at this time of year from the necessity for an occasional purifying flight, because there are really few days on which bees could not with safety indulge in a little out-of-doors exercise; and when it is considered that during the severest winters breeding goes on, and the bees are able to contain themselves for several weeks, it will be evident that a few days will not put them to great or dangerous inconvenience. It is not here intended to be conveyed that bees suffering long confinement as stated do not suffer from its effects, and the point is only alluded to by way of comparison.

General Directions.—The cold weather having practically kept everything backward, the Hints for the past two months may still be considered in force and repetition would be tedious; nevertheless it must not be forgotten that the time of year is at hand when better times may be expected; and as after the next issue of the *Journal* only a fortnight will elapse between each budget of information, and as new subjects would start better in a new volume, I respectfully beg leave to say Good-bye, with many thanks.—C. N. Abbott, *Southall.*

Foreign.

GERMANY.

The 28th Congress of German and Austrian Bee-keepers will be held in the course of this autumn at Frankfort. Dr. Miguel, mayor of that town, will be president, and Herr Heinecken, vice-president. For the 29th Congress to be held next year, Königsberg, in Prussia, has already been selected.

Dzierzon's Rational Bee-keeping.—A correspondent writes to the Editor of *Bienenzeitung* on 2nd of February,—'You might at your convenience mention in the *Bienenzeitung* that a translation of Dzierzon's *Theory and Practice* has been brought out in England. The *British Bee Journal* is full of praise concerning this work. I hope this information will be agreeable news to our distinguished bee-master whom I heartily congratulate upon this event.'

A Descendant of the first imported Ligurian Queen.—As the name of Dr. Dzierzon, by the recent translation of his work, will, no doubt, become more and more familiar to British bee-keepers, it may be of some interest to the readers of the *British Bee Journal* to know that at the last congress of the Austro-German bee-keepers at Wiener, Neustadt, a Ligurian queen, exhibited by Dr. Dzierzon, was pronounced by the jury to be the finest, amongst many fine specimens, on show. This queen was a direct descendant of the first Ligurian stock introduced into Germany (and most likely the first one brought to Northern Europe) thirty years ago, on the 13th February last.

Dr. Dzierzon says that many other descendants of this first stock still exist in the perfect purity of their race.

ITALY.

The annual general meeting of the Central Bee Association has been advertised for the 24th of this month.

The death of Chev. Francesco Berra is reported, whose unremitting efforts to promote the interest of apiculture, particularly among the working-classes, were well known, and greatly appreciated among cottagers. He was the author of a book called *La Coltura delle Api*, and for many years past he undertook to conduct gratuitously practical lessons in bee-keeping, by which means a great impetus was given in the neighbouring distairts of his residence.

One of Dunham's machines for making comb-foundation has recently been imported from America by one of the most active members of the bee community. It is the first of the kind introduced into Italy, and its owner reports that the circular which he has just issued, is bringing in numerous orders from all parts of the kingdom. It may prove interesting to English bee-keepers to know that the price at which comb-foundation is to be sold in Italy this year is 4*s.* per kilo of about 2½ pounds.

FRANCE.

A meeting of the Société Centrale d'Apiculture et d'Insectologie was held in Paris on the 21st of February last, in the course of which the treasurer handed in his annual report of income and expenditure. His figures show that the aggregate amount received during last year from all sources was about 2000 francs, and the outlay 1249. The meeting proceeded then to appoint the auditors, after which the secretary announced that the Minister of Public Instruction and Fine Arts had decided upon granting the Society the free use of that portion of the Palais de l'Industrie which the latter requires in order to hold an exhibition between the 1st and 22nd of July next. Foreign exhibitors will be admitted.

A good idea of the bee-trade now carried on in France may be formed from the advertisements of the *Apiculteur*. Although this is only one of the Bee Journals now published in France, the aggregate number of stocks offered for sale in its February number amounts to 1280, made up mostly in lots of 100 and upwards.

CHILI.

Exports of Honey and Wax from Chili.

Chili exported in 1880—

Honey.	Wax.
1,012,071 kilograms *	87,384 kilograms

In 1881 the exports from that country amounted to—

Honey.	Wax.
1,559,937 kilograms	100,904 kilograms

of which—

Honey. Kilograms.	Wax. Kilograms.		
152,036	10,865	were shipped	to Great Britain.
684,818	28,861	,,	France.
688,604	50,493	,,	Germany.
200	500	,,	Peru.
12,808	7,965	,,	Uruguay.
7,800	—	,,	Brazil.
13,671	—	,,	Australia, &c.
—	2,220	,,	Ecuador, Colombia, &c.
1,559,937	100,904		

Extracted from the *Estadistica Comercial de la República de Chile correspondiente al año* 1881.

* 1016 kilograms = 1 ton English.

Bee-Swarming in March.—I don't know whether you would think the following worth while recording. A curious freak of a hive of bees, which last Saturday (February 24th), when the sun was shining bright and warm, left their hive, and settled on a hedge as they do when swarming in May. The owner, a farm servant of mine, hived them, and up to this date they are at work when the sun shines as a swarm does in summer. I never heard of bees swarming before April; and even April is considered very early.—Robert A. Dickins, Lieut.-Col., *Woodford Grange, near Wolverhampton, March 1st.*

Correspondence.

*** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

As it will be the aim of the Editor that the Journal should be published simultaneously with the other monthly serials Correspondents are respectfully requested to forward their communications as early as possible.

All Correspondence must bear the name and address of the writer, not necessarily for publication, but as a guarantee of good faith.

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom for February 1883 amounted to 2175*l.*

[From a private return sent by the Principal of the Statistical Office to E. H. Bellairs, Christchurch, Hon. Sec., H. & I. W. B. K. A.].

SKEPS FOR COTTAGERS.

Few bee-keepers believe more fully than I do in the advantages of the bar-frame hive over the straw skep, but I am convinced that the Rev. W. E. Burkitt is right in thinking that it will be a long time before the former is generally adopted by the cottager. I have offered to start several men with good bar-frame hives, containing strong stocks, well stored, crates of sections, and everything complete, at 25*s.* each, and to wait for payment until they had taken sufficient super honey to clear off the debt. After thinking the matter well over, however, they have declined my offer, preferring to go on in the old-fashioned way with straw skeps. I think, therefore, it would be an excellent thing if some gentlemen would adopt the suggestion thrown out by the Rev. W. E. Burkitt, and write an appendix to *Modern Bee-keeping*, showing what kind of skeps should be used, and the best mode of management. A few simple facts about bees could be added, the importance of working supers should be enforced, and the method illustrated. Instructions might also be given how to make good, plain, strong, cheap bar-frame hives. If measured illustrations, &c., were given, after the style of the late Mr. Hunter's admirable appendix to his *Manual of Bee-keeping*, I believe many a cottager would soon be won over to the better way. When I remember the large and well-made skeps, with queen-excluders, supers, &c., exhibited by Mr. Cowan at the Alexandra Palace Show, I feel that it would be a long step in the right direction if such hives could replace the miserable little dome-shaped structures so generally met with. The Burkitt section-crate could easily be worked on them, and would thus gradually be led to understand and appreciate the improved methods of bee-culture. If Mr. Cowan and Mr. Burkitt had a short conference I fancy we should soon have a suitable little pamphlet, which many of us would be glad to purchase for gratuitous circulation amongst neighbouring cottagers.—C. T.

SKEPS AND BAR-FRAME HIVES.

I am glad to see that the storm, which for some years has been raging against straw skeps, is showing some signs of abatement, and that there is a disposition to teach cottagers that they may make their bees pay without necessarily taking to a system which they have not yet learned to understand.

I am far from being insensible to the advantages of frame-hives, or slow to make use of them, but for all this I know from experience that it is possible to get very good results from straw hives. I have nothing to say in

favour of little round-topped skeps, but refer to good 16-inch flat-topped Pettigrew hives, such as are supplied by Mr. Yates, of Manchester.

There is not the least difficulty in putting either supers or sections on these hives, and the bees are just as willing to work in them as when on frame-hives. I have kept bees for twelve years, and have only known one in which they did not pay their way,—in 1879. I will mention the results of the two best years, in one of which I had only straw hives, and in the other a mixture. In 1876 I had five 16-inch straw hives, these increased to many more by swarms, but were reduced again by uniting to five for stock. The produce was 163 lbs. super honey, and 338 lbs. comb taken from the hives. The super honey included three boxes of 25 lbs., 24 lbs., 20 lbs., one of which obtained second prize at local show. We also obtained first prizes for run honey. The supers were obtained chiefly from swarms. In 1881 I had four 16-inch straw hives, and three frame-hives. These with swarms increased to twelve, and in the autumn were reduced by uniting to seven. Altogether they yielded 233 lbs. in sections and supers; 85 lbs. in beautiful pieces; and 265 lbs. run honey. Of the sections 60 lbs. came off straw hives, and 46 lbs. in supers.

It is quite possible that if I had been more advanced, and had used only frame hives, the results might have been larger; but all I wish to show is that good results may be obtained from large flat-topped straw hives. Of course it is a great advantage to be able to use foundation, but one may balance against this the beautiful pieces of honey found on the sides of straw hives; and though there is an advantage in being able to look at one's bees in frame-hives, there may also be an advantage in not being able to look at them and disturb them too often.—J. W. N.

AGRICULTURAL LABOURERS.

I write in the interest of *bonâ fide* cottagers—the agricultural labourers. I belong to their class, though perhaps somewhat raised above it; and in their interest, and also as a member of the British Bee-keepers' Association, the object of which is particularly to benefit the agricultural labouring classes, I thank Mr. Burkitt heartily for his able paper. The agricultural labourer cannot make a bar-frame hive from diagrams. He cannot out of 12*s.* to 16*s.* a-week wages buy even the cheap boxes called 'Cottagers' Hives.' And if one is presented to him he cannot learn how to manage it from a book. Indeed he is very shy of books, and but too frequently regards all 'book-learning' with contempt. To jump from the skep and brimstone pit into the bar-frame hive and super at one bound is a leap quite beyond his powers. I say at one bound, because the bar-frame hive to be successful requires proper management from the very commencement. These are solid facts, which, I hope, will now be taken into earnest consideration. I trust we shall hear no more either about 'burning' the straw skep or the obvious misstatement that the bar-frame hive is as 'easy' to manage as the skep. That the latter statement should have been seriously put forward is to me a marvel. I would simply ask, Is it 'as easy' for an *agricultural labourer to learn* the management of the former as it is for him to learn his forefathers' plan?

Considerable efforts have been made under the auspices of associations to force the agricultural labourer into adopting the bar-frame hive offhand in spite of the above-mentioned facts; and with what result? Why, the agricultural labourer is being driven out of the field as a honey-producer altogether. Instead of being taught and benefited, he is really being injured by competition and abuse. Who is it that mainly reads the widely-spread comments about the *inhumanity* of the agricultural labourer's system, and the *inferiority* of his honey with its *horrible smell* of brimstone, &c. &c.? Why the very class to which he mainly looks to find purchasers. As a natural result, many begin to fight shy of 'poor Hodge's' honey, and piously determine to discourage him from 'inhumanity' by purchasing the more 'attractive' produce of those who, from better circumstances, are able to buy and work bar-frame hives. And thus 'poor Hodge' is being driven out of the field by competition and abuse. I do not deny the general truth of the indictment against the agricultural labourer's system, but with respect to *inferiority* I will ask one question, By whom is syrup sold to the public as honey? By Hodge, or by some of his detractors? I must here remark that I am not opposed to bar-frame hives; I entirely approve of them, and have them in use as well as skeps. I also fully believe and rejoice to see that there are many English gentlemen who are really desirous of benefiting the agricultural labourer in this and other respects; and now that Mr. Burkitt at the British Bee-keepers' Association, and Mr. Peel at the Devonshire Association, have given such valuable hints, I hope we shall soon see better and more encouraging results. By all means first teach the agricultural labourer how to make the most of his skep; how to drive, unite, and handle his bees; how to feed and winter them; how to stimulate and get them forward in the spring; how to help forward a swarm in adverse weather; and how to use supers and sections upon skeps. Also *help* him. Let suitable skeps, with sections, honey bottles, &c., be put within his easy reach. Help him as much as you can by forming bee-clubs, and sending round experts to guide him. But beware of exciting his suspicions by too persistently sticking the collector's book under his nose, or, perhaps, he will think it is only his subscription that is really wanted. I think every Association should aim at establishing a special fund for *helping* the agricultural labouring classes. They need help as well as sympathy. And now for a hint. We have in England a number of bee-keepers with such comfortable incomes that they have no occasion to farm bees for the sake of profit. Let them be generous and devote their profits *directly* to 'Hodge's' help. (They do, of course, help indirectly by pioneering his way.) Let them compete with one another to see which, with not more than a dozen hives, can contribute the largest profit to the Agricultural Labouring Cottagers' Special Fund. Who will be the first in the field?

Now for a hint on the subject of bee-flowers. We are all indebted to Mr. Ingram and others in this direction. The bees need more early spring flowers. But should we not get on faster if the English or popular names of flowers recommended were given when possible? It would give 'Hodge' a better chance of growing some. Also, is not the time come for a small book, in a cheap form, to be issued on the subject of growing flowers in the interest of the honey-bee? Let us reflect for a moment how many there are who grow flowers (though they do not keep bees), and who might as well grow good bee-flowers as not. Much might be done in this way to help their bee-keeping neighbours without the least sacrifice. I must apologise for such a long letter. The agricultural labourer needs help, he always did, and he always will. When the time comes for education to enable 'Hodge' to help himself, he will cease to be an agricultural labourer!—H. T. S., *Westham, Hastings, March 8th.*

INSTRUCTION OF COTTAGERS.

I have read with much interest Mr. Burkitt's paper on 'The best way of instructing Cottagers in the art of bee-keeping,' also your leading article in the February number of the *Journal*, and again the report of the discussion on Mr. Burkitt's paper, I must say I am surprised at the opinions of some of the principal persons who took part therein, for I have been long of the opinion that both in its practice and its publications the British

Bee-keepers' Association have too much ignored improving the use of the common straw skep.

With the class of cottage bee-keepers who use it to at once run down or put aside the skep is at once to take away the fulcrum by which he could be lifted by improved management into the attitude of the bar-frame hive. I am not an old bee-keeper myself, but I will say this that until I had entered into that pleasurable pursuit none of my hobbies—and I have tried many—have given me occasion for so much thought and exercise of ingenuity and device. Are we to expect such from a class whose efforts are only drawn out by the prospect of the very immediate future? I think not.

In teaching the cottager I would first essay to do so on three points:—1, Driving in view of artificial swarming; 2, Feeding in its simplest forms; 3, Getting surplus honey in its most attractive and saleable shape.

With regard to the first point let me give you an incident which occurred to me last May. In passing a cottage I observed the bees hanging out of a skep. I went in and asked if they would sell the swarm, and they agreed to it, I wished to drive it at once, but that I found was not to be thought of; so I agreed as to sending it to me when it came out. I waited a week—a fortnight, and then I went to see about it. 'Ay, sir, I wish they would swarm. I want to get to tying my hops, and I am obliged to pay a woman to do it for me.' 'Let me drive them.' 'No, my man won't have them interfered with;' and so wet weather coming I got my swarm,—a fine one—a fortnight later.

My second point, Feeding, would be as to feeding in spring, and feeding swarms.

My third,—Surplus comb honey in sections, this would entail the use of flat-topped skeps, which in my district are not uncommon, and the use of a very simple adaptor made by a prominent expert at the small cost of *3s. 6d.* to *5s.* In the matter of honey, if the cottager could be once taught to get it in this form or to feel the money chinking in his pocket, here would be the most efficient lever to raise him to the use of the bar-frame hive.

This would be my method for those advanced bee-keepers to adopt as recommended by Mr. Burkitt, each in his own district; this, and not the ignoring of the skep, as was advised in one case, or, as in another, the burning of them altogether.—JOHN MARTEN, *Dunkirk, Faversham, Kent, March 5*, 1883.

EFFECTS OF BEE-STINGS.

Some time ago when arranging to give a *conversazione* in aid of our village club, I asked Mr. W. H. Preece, F.R.S., the noted electrician, to help me, and when he asked me what he should show, I foolishly remarked 'Oh, this is the age of electricity, as the penny-a-liners say, anything electrical will do;' and to my horror he showed me an article written by him with the title 'The Age of Electricity.'

Now I do not know of any electrical cure for stings, but with us doctors this is 'the age of carbolic acid,' and from the little experience I have had in treating bee-stings, this seems to me the best remedy up to the present time.

As there are some—well, I will be moderate, and say only—204 noted specifics for bee-stings, it may be taken for granted that though some are of use occasionally, there is no absolute specific.

There is nothing like making experiments upon oneself, so I immediately purchased some carbolic acid, which is generally used for disinfecting drains, and what I believe is called in the trade 'crude carbolic acid,' and then invited a bee to 'sit down' on my hand. After getting the full effects of the bee-poison, I applied the carbolic acid, and the pain of the sting diminished at once.

When in Brunswick last year visiting the apiary of Herr Gravenhorst, I got stung on the nose, and my friend applied carbolic acid with very good results.

I do not know what Dr. Pine's Lotion consists of, but it is most likely carbolic acid with some liquid ammonia. Both are good remedies, and, like in the dark ages of medicine, several drugs were ordered in one bottle so as to ensure one or more being of some use, so a mixture of these two with some laudanum would probably prove beneficial.

'Cwmro' seems to be one of those unfortunate individuals who are easily affected. I have known cases in which one sting produced erysipelas; and in another case, the face of the person stung was tremendously swollen, so as to almost conceal the features.

Fortunate would doctors be if this could be explained; but we have to veil our ignorance by talking of 'idiosyncrasy,' &c. No doubt in free livers, who do not belong to the Blue Ribbon Army, in highly sensitive people, and others, a sting is more severe in its effects than in one who is strong and hearty.

If an antidote is not at hand, and the swelling has commenced, hot spongio-piline or cloths, or an evaporating lotion of lead and opium, would be some of the best remedies to use, or, in other words, any of the usual medical remedies for any inflamed part.

I have had no experience of Cyprians, but with the hybrids and Ligurians I generally find that if we neglect any of the proper precautions in examining the hives, I am certain to get stung for my carelessness.

Let 'Cwmro' begin with a veil till he acquires confidence and knowledge; and if he can take lessons from any old bee-master who knows how to handle bees, there is little doubt he will be able to get his certificate as an expert.—GEORGE WALKER, L.R.C.P., *Wimbledon, 22nd Feb.*

COMB-FOUNDATION: PURE WAX.

Amongst other things in use in the apiary comb-foundation will take a leading part in the programme for the ensuing season; and doubtless there will be some competition at coming shows, and underselling with dealers in the sale of that most valuable assistance to bees, which certainly is one of the best gifts that can be bestowed upon them. The importation of machines of different makers and manufacturers of foundation has brought that article to a price so near the cost of wax as to induce bee-keepers to use it largely in their apiaries. Foundation of pure wax and a good 'make' should weigh 2 ozs. per sheet (of the so-called standard size) and is of ample weight for brood frames; that used for supers may be as thin as possible, and of the very best quality.

Purchasers of foundation should 'look' before they leap,' and bear in mind that the thickness of the sheet adds to its weight and diminishes its superficial measurement: and beware of its spurious mixture; it can be adulterated, and when analysed will be found to contain about 50 per cent of paraffin or kerosine, or still cheaper substitute for wax, both of which are equally ruinous when used as foundation; and it is difficult to detect when mixed with the fragrant United States wax. It is said that certain dealers included in their collections of appliances at last season's shows cakes of paraffin.—DAVID LING, *Rochford, March 16.*

HELP FOR SOMERSET.

With regard to the letter which appeared in the *Journal* last month as an appeal for help from Somerset to the adjoining counties I may say, on behalf of Dorset, that we shall be only too happy to do all we can to start this Association. Our Committee decided last year that we would lend our tent to Flower Show Committees on their paying us *1l. 1s.* for the use of the tent, 10s. per day for the expert, in addition to his railway fare, and carriage of tent to and from the show. As the county is a large one, I would venture to suggest

that it should, if possible, be divided into two parts, north and west, with a secretary for each division. I am afraid that while the hon. secretary lives on the borders of the county, close to Devonshire, he will never be able to undertake the management of the whole of such a large county as Somerset. I think it is quite time that the Somerset Association was more than a name; and as the Bath and West of England Society are to hold their Show at Bridgewater this year, I hope that the committee of the British Bee-keepers' Association will use their utmost endeavours to place the Somerset Association on a sure footing.—W. H. Dunman, Jun., *Hon. Secretary Dorset Bee-keepers' Association.*

BURNING SKEPS.

Will you kindly allow me to correct one or two inaccuracies in the last number, both in the editorial and in reporting? In the former I am spoken of as saying at the yearly meeting that I would burn all the straw skeps in the kingdom. This gives me credit for too much. I advocated burning all straw skeps (here I was met with cries of 'No') so far as the cottagers' interests were concerned. I had not contemplated a firing crusade from the Land's End to John O'Groat's.

As regards the controversy in the editorial, I am neither a mathematician nor a musician, therefore cannot argue on the basis of these sciences; but, as regards 'You might as well make an ordinary cottager a present of a pianoforte as of a bar-frame hive, unless you had previously educated him up to it,' I think your *unless* begs the whole question. I assume, also, that bricks given to a mud-hut builder would not enable him to build a brickhouse, '*unless* you had previously educated him up to it.' And I am quite sure you would not expect 'an ordinary cottager' to make a legitimate use of a pianoforte before you had supplied him with the instrument to be educated up to. We do not gather grapes of thorns.

Further, on page 244 of the *Journal* for this month, I am reported as saying, 'That skeps were only sold for the benefit of hive-makers.' I said that I thought the present movement of advocating the straw skep was made by some, mostly, in the interest of *a* hive-maker, and, that I was led to this conclusion by reading the advertisement at page 50, in the *Journal* for July 1882, in the second column (see under heading 'Wilts Bee-keepers' Association).—Frederick H. Lemare, *4 Sydney Terrace, Guildford, 12th March,* 1883.

MODERN BEE-KEEPING IN THE FENS.

About a year ago a Bee-keepers' Association for Cambridgeshire and the Isle of Ely was started, and has, I believe, prospered well up to the present time. Bees are largely kept in the fen country, but, in most cases, only in an ignorant and barbarous manner. The principal object of the new Association has been to induce cottagers and others to adopt the more rational and humane methods of modern bee-culture now so widely known, and the chief inducement held out is *profit*. Bee-keepers are told that there is a ready sale for their honey if ripe, clean, and neatly put up; and that by proper management the increase of the honey harvest will be so great that they may look with confidence to their bees to meet rent and doctors' bills.

That modern bee-keeping is, in many cases, profitable is abundantly evident from the numerous reports which appear in your *Journal*. But in this part of the fens many converts to the improved system are disheartened and disappointed. Their bee-keeping is *not* profitable. With the best of hives and appliances they obtain a large supply of honey, extract it ripe and clean, put it up in attractive jars, and then find it rejected in the market. Experts and dealers will not look at it; they say it is so dark in colour, and so strong in scent and flavour, as to be unsaleable. This is especially the case with honey gathered in summer and autumn.

Now, Mr. Editor, can any of your readers suggest a reason and a remedy for this difficulty? Some experts attribute it to fen crops, others to fen water. In the meantime I remain,—A much-puzzled Fenman, *Isle of Ely.*

NEW FEEDER.

In this month's *Journal* Mr. Green describes 'A New Feeder.' If he turns to page 82, Vol. I., and page 34 Vol. III. of *Journal*, he will there find his feeder described almost to details.—A. C., *Blair Athole.*

Mr. Barge, of Great Yarmouth, writes:—'The feeder described by Mr. Green in this month's issue of the *Bee Journal* is first-rate, but not new. I have used it for the past two years, and recommended it to many bee-keepers in this district, especially those who use the old round-top skep, but instead of a glass tube I use a whole goose-quill, inside which I put a little cotton wool, or bit of wood, to regulate the supply—*this is no invention of mine.* I saw it described in some Journal, and adopted it. Also on fine warm days I place an inverted jar filled with syrup on a piece of glass at some distance from the hives. The bees very soon find it, and it is quite a pleasure to see them get it, and carry it straight away to their homes. This plan I adopted from seeing it in an American Journal.'

Seeing in the *Bee Journal* for March a 'new bee-feeder' which I used some four years ago, but do not do so now, as I found a much better one invented by T. Owen of Corsham; it is on something the same principle, viz. a tin with a screw and tube similar to a benzoline lamp, but the tube is stopped up with a piece of sawder, and three holes drilled in it. When I wish to feed slowly I stop up two of the holes with a spill of wood, leaving only one open; and as the bees require to be fed faster I open them, and I find that when the three holes are open the bees will suck quite a pound of syrup in twenty-four hours, and if the food is not required, it will stay on the hive without dropping; whereas when I used the glass tube and cork I often found the corks let air in the bottle, so that the syrup frequently ran amongst the bees. I have forwarded you per post one of the feeders made by a local tinman for ninepence, so that for utility and cheapness I do not think they have yet been outdone.—Francis Bains, *Corsham, Wilts.*

[We have received the feeder, and consider it simple, effective and cheap. We beg to thank our correspondent for the same.]

[Letters to the same effect as the preceding have been received from T. F. Ward, Highgate, Mr. Silver, jun., Wantage, and Herbert Clark, Wingfield, Trowbridge.]

SENDING BEES BY POST.

Mr. John Edey, in his criticism of Ligurian v. Black Bees, page 204, seems to think that bees are prohibited from passing through the post. I believe no Act of Parliament, without which the Postmaster has no authority to detain them, excludes bees, provided they be packed and guarded in so secure a manner as to afford complete protection to the contents of the mail bags, and to the officers of the Post-office, and are within the prescribed limits as to size and weight; for extra safety you may seal them up and register them.

I have had them from Beyrout (fourteen days on the road), the postage on which, including registration, was under *4d.*, and this with a month's supply of food with them.

In transmitting through the post care should be taken

that no bees are visible, also that there is no label to suggest that any are inside; otherwise some of the clerks might pretend they were frightened, and it would be more than most post officials dare do to open or detain a registered letter packet, or break a seal. I may here remark that whenever a registered packet shows signs of having been tampered with or delayed, the exact individual who did it can be accurately determined. Of course no one should attempt to send an insecure package, and I believe they are liable to pay heavy damages should any one be stung.

I had two *unregistered* lots sent to returned Letter-office early last summer, when I wrote the Postmaster-general, pointing out that nothing published in the *Postal Guide* excluded them, as they were packed absolutely safe; the correspondence, which is very lengthy, is not finished yet; but anyhow, registration puts them in a fix, especially if no sender's name is on.—JOHN HEWITT, *Sheffield.*

LIST OF PLANTS.—INSTRUCTING COTTAGERS.

The list of plants from Belvoir is interesting enough to the erudite florist, but not of much use to the cottager, and I hardly think it will be worth his while to pay attention to anything but a good patch of Limnanthes Douglasii, and this, when once sown, will take care of itself.

I have not for a long time met with anything more readable than Mr. Burkitt's lecture. A cottager remarked to me to-day, 'What he says would suit this place very well.' This shows its value. How did said cottager know of the lecture? He gets the *Journal* in this way. We have a rule in our Cornwall Association that in any parish or district where not less than eight members can be got together, not more than six of them being cottagers (at 1*s.* a-year), the Association shall circulate the *Journal*. This is one way of 'instructing cottagers.' No doubt the parson has, in many places, to do all the starting and pushing work. I have driven, cut out combs from skeps, and done other things for cottagers; and many have seen driving, uniting, transferring, extracting, &c., among my bees. The consequence is that one or two can do the work themselves, and the interest in the matter is increasing.—C. R. S., *South Cornwall.*

Echoes from the Hives.

North Leicestershire.—The fine weather, which prevailed during the last week of February and the first five days of March, gave the bees an opportunity of putting by some little supply of pollen and pea-flour. On the 6th inst. snow fell, and is still lying in patches to-day (23rd inst.). The temperature, too, has been very low, at night—17° to 24°—and never above 40° by day. The bees have, therefore, been closely confined during three weeks, with one exception, viz., Sunday last, when they ventured out for a short flight during a lull of the piercing wind and a burst of sunshine. The result of this spell of wintry weather is awaited with no little anxiety. Should the weather become more genial, there will be little or nothing for the bees, as the winds have battered to pieces the unopened crocuses. The gooseberry and currant trees are thoroughly checked, and the willows not yet in bloom. Altogether the prospect is neither hopeful nor cheering.

Leicestershire, Quorn.—Am delighted at the prospect of more frequent issue of *B. B. Journal*, hope every subscriber will try to get at least *one* more to take it; it would stimulate bee-keeping, and help to pay for increased outlay. It may interest you to know the state of some hives in this part. Since February 24th I have examined twelve bar-frame hives in this district, and found that all had queens, and most were fairly well off for provisions; all had a little brood (except two), but none in more than two frames; most were pretty well off for bees. Wednesday, February 28th.—A splendid day, put some pea-flour in crocus blooms, bees came to them in thousands, and fairly revelled in it, and the weather has been beautiful from that date until Monday night, March 5th, 'A change came o'er the spirit of our dream;' and it was bitterly cold, and blowing from the eastward, with sleet at intervals, until March 8th, when we woke up to find three inches of snow, and notwithstanding the hive-entrances were shaded from the sun (which was very bright) several bees ventured forth, never to return. We have had nothing but blow, wind, frost and snow. On 22nd, equinoctial gales, which I trust may finish a most horrible March. Friday, 23rd.—Being full moon I think we may fairly hope for a change, and that bees may still have a chance at what crocuses are left. We have here a lot of willows covered with catkins, only waiting for a bit of sun to burst with honey and pollen, and then should we not hear a hum of delight?—J. K. E.

Essex.—The severe weather we have experienced since my last report has not improved the condition of our apiaries. With the thermometer at freezing, and seldom above 40°, all breeding has ceased. Bees have been confined to their hives, and I am afraid are rapidly decreasing in numbers. Flowers have all been cut off by the frosts, leaving bee-keepers to depend entirely upon artificial food for the next month.—E. B. A., *Hon. Sec.*

South Warnboro', Hants.—February being exceptionally mild many bee-keepers, like myself, no doubt began to imagine the winter past, and that March would do as its predecessor had done, but instead it has brought us the reverse, for, with few exceptions, bees have found it too cold to venture out, and where they have done so they have been lost. Those who cultivate the Arabis Alpinus, or where wall fruit-trees are plentiful, will have a store of bloom for pasturage when this spell of winter weather leaves us. The Dandelion, as a wild flower, is a very useful spring blossom in this locality. Bee-keepers will do well to look how many starving stocks they have in the apiary, and give them at least sufficient food for present need, increasing the daily supply until their natural food is abundant.—W. H.

Buttermere, Wilts.—Within the last five weeks I have given ten lectures on bee-keeping in Wilts, viz., at Ludgershall, Collingbourne Ducis, Burbage, Pewsey, Woodborough, Marlboro', Chute, Hindon, Tisbury and East Knoyle, and visited several other parishes. I have now the following report to make: Upwards of 40 bee-keepers were visited, owning between them 392 stocks, viz., 82 in bar-frame hives, 9 in plain wooden boxes, 301 in skeps—some 30 of these being flat-topped and worked with straw caps or bell glasses. Of this total 6 in bar-frame hives, 2 in boxes, and 19 in skeps, were found to be dead, and a great number in skeps had perished previously. Of the survivors at least one half were lamentably short of food. The weather, however, in most cases prevented a thorough examination. Many well provided with sealed stores in November were very short by January 6th, a bright warm day here. The next chance for examination was on February 7th, when brood was abundant. The 2nd, 3rd, 4th, and 5th of March were also fine and bright, and bees busy in crocus and pea-flour, since which, up to to-day, there has not been a single day without a slight fall of snow, accompanied often with intervals of bright sunshine. During January rain was registered on 24 days, in February on 21, and now the snow is 2 inches deep.—W. E. BURKITT, *Hon. Sec. of W. B. K. A.*

Dorset.—The bees of Dorset, on a whole, have wintered very well, and those who live in the neighbourhood of the heather have still an abundance of supplies. I am

afraid that a great number will be lost if they are not looked to this month. I find with my own that the blacks have more honey than the foreign bees, especially the Cyprians, which I have been obliged to feed.—W. H. Dunman, Jun.

Warwickshire.—Sorry to see from the perusal of this month's *Journal* that one of our largest apiarians has lost a stock of Ligurians; it is hoped other bee-keepers in the county will at once take warning and look to their stocks. Bees are now breeding fast, and consume large quantities of food.—J. N. B.

Horsham, Comptons Lea.—During the whole of February the weather was extremely mild, causing a great consumption of stores. The rainfall was considerably above the average, as much rain falling on three consecutive days as we usually get during the whole month. Rain fell on nineteen days, and the total amount in the month was 4·24 inches. The largest quantity fell on the 11th, viz., ·60. During the same month in 1882, rain fell on nine days, the total quantity being 1·07 inches, and the largest quantity on one day ·46 inch on the 26th. The highest temperature in the shade was 57·3 on the 28th, and the lowest 29·3 on the night of the 17th. The sun made its appearance on fourteen days. On the 15th at 6.45 p.m. there was a lunar halo. The prevailing wind was S.W., there being a violent gale on the 11th. The bees worked whenever the sun shone out on crocuses and other spring flowers.—Thos. Wm. Cowan.

[In last month's Echoes there is a mistake. The highest temperature should be 55·3, not 5·53.]

Northampton.—Bees here worked splendidly the first few days of this month, and carried in immense loads of pollen, since which time frost has cut down crocuses, and prevented the blooming of hyacinths, damaged roses, and sent the bees again to winter quarters, but of course you hear of plenty of such doleful cases.—D. W. B.

Sussex.—March, true to its character, has given us the usual complement of cold winds. The first few days were fair and mild, until about the 7th, when the wind veered round to the north-east, bringing on winter in earnest. During the 8th and 9th we were visited by severe snow-storms; and sharp frosts continued for several nights in succession. By the middle of the month the wind had dropped back to its old quarter (west), bringing a somewhat milder atmosphere. At the time of writing it is again in the east, with every probability of more snow to keep company with the remnants of the former fall, which still lie about under the walls and shady sides of the hills. Though not by any means pleasant, the colder weather has been of great service in checking the too-rapid development of vegetation. Another week or two of such mild weather as we experienced in February would have seen many fruit-trees in full blossom, only to be, in all probability, cut off by frost at the most critical time. Although the production of brood has been somewhat checked, I am pleased to find no case of chilled brood in my own apiary, but am afraid considerable loss from that cause will have been experienced where nothing was done to prevent the cold blasts of air driving into the brood-chamber.—S. Simmins, *Rottingdean, Brighton.*

Hull, Sunk Island, March 19th.—In taking bees from condemned skeps last autumn I saw a curious case of comb-building. The combs, instead of being straight, were built in the shape of a gigantic horse-shoe, that is, the outer one. The others of course being placed inside each other, like large and small shoes packed one within the other, terminating in a small slab of comb at one side. The bees had evidently followed the rings of straw in the hive crown as a guide in starting the large outside comb. Thus forming a rare and pretty sight. The weather has been severe with us in East Yorkshire this month so far.—John C. Lambert.

Cornwall, March 21.—February was a trying time on account of the excessive wet. We had in fact about double the average quantity of rain for the month. Towards the close of the month, and in the early days of March, we had fine spring-like weather, and bees that had not been really quiet all the winter were out every day. Since then we have had further storms and winds, and many bee-keepers are becoming anxious. The frost has been excessive; the records showing a longer continuance of frosty nights than has occurred within the past forty years. I am, however, glad to hear from two or three sources that stocks are well provided with sealed stores, and that breeding has commenced. The prevailing frosts may really result in good, by checking the fruit-trees, and enabling them the better to withstand the blighting winds we so frequently get towards the end of April and the beginning of May.—C. K.

Hereford, March 22nd.—Pollen was freely brought in during a fortnight's warm, sunny weather in the end of February, and some of my hives had brood in four combs. Two stocks have perished from dysentery, which is somewhat prevalent this spring. With March came a season of exceedingly cold wintry weather, which still continues, and I am afraid that many bee-keepers who have fed early have made a great mistake, as the bees will now only care for a very small quantity of brood.—A. Watkins.

Cheshire (Mid.), March 22nd.—Bees have come through the winter in this district remarkably well, considering the weather we have had. At the beginning of the month breeding was going on to a considerable extent, and the bee-keepers around were jubilant over the forward state of their hives, but on the 4th the weather suddenly changed, and instead of bright sunshine and gentle zephyrs, we have had bitterly cold east and north winds, frost and snow, and as I write there is an easterly gale blowing as if it never would cease.—T. M. B., *Bowdon.*

East Derbyshire, March 22nd.—The last echoes from this district, it appears, reached you too late for publication, I must, therefore, make the few lines I now send you apply to last month as well as this. During the early part of February the weather was very stormy, though the bees seemed to get on very well in spite of it, and the last week in that month and the first in March were unusually bright and sunny, so that, though there was but little natural food, the snowdrops being almost over, and the crocuses scarcely in bloom, artificial food was taken very freely. Not being troubled much with neighbours' bees, I prefer to give both syrup and artificial pollen outside the hives, and large quantities of both were carried in and stored.

Milk and eggs are, I believe, very useful at this season of the year, supplying the nitrogen which is necessary for the young brood as well as in replacing the loss of tissue in the older bees, and I find the most convenient form in which to give it is condensed Swiss milk, diluted with syrup. A whole tin was carried into my hives one morning in about three hours, and it had a very odd appearance in the combs. Keeping its white colour and opaqueness even after it had passed through the honey-bags of the bees.

On the 6th of March a violent storm of wind and snow with intense cold commenced, and I fear that this will be very injurious to those stocks that had commenced breeding freely, as all mine had. It is still colder than at any time during the winter, so that one can't examine the state of hives, which I fear is drawing very near to famine point.—G. S.

Cairnie-by-Keith, N.B.—As to the condition of bees this month I can say nothing, for all my hives are buried below a snow-wreath. At the present date, March 20th, we have a most severe snow-storm; traffic is at a standstill, but we hope to see our busy little friends at work

soon. About the first of the present month we had a few very warm days, which in a measure has helped to prepare for the present confinement. I am sorry to have to report the death of a worthy bee-keeper, and a constant reader of the *Bee Journal*, viz., Alexander Bain, bookseller, Huntly. Mr. Bain was a very earnest bee-keeper. He made *all* his own hives, was an expert manipulator with bees, could drive and unite swarms to perfection; in a word, he did far more with his *one arm* than hundreds do with both.—A. Cockburn.

Fife, Leslie.—Since my last report we have had extremes of weather. From 20th February to 5th March the weather was warm and spring-like, and crocuses, arabis, and other early flowers made rapid progress, but just as they reached the blooming point a gale from the north burst upon us bringing snow, and lowering the temperature fully 20 degs. From 6th March we have had more or less snow every day, and bees which were flying freely before then have not since been out of doors. The first and only time natural pollen has been gathered was on 4th and 5th March. Hives examined in end of February were found breeding in small quantity, but as I found them all well supplied with stores I have not yet begun feeding, preferring to wait the advent of more promising weather. Some of my neighbours have been feeding for fully a month now where stores were short, but these hives must suffer just now with much young brood, and bees going out in search of water in this inclement weather. The cottagers here are waking up to the advantage of the bar-frame, but the cost operates against their taking full advantage of the system, and the natural reluctance of casting aside their present plant. Rainfall for February 2·4 inches.—J. L.

Passage West, co. Cork.—Except a few mild days in the beginning of the month, there has been nothing but bleak north-east winds, and vegetation much checked, except in sheltered localities. The weather has been mostly bright and sunny, and where hives have not had their entrances shaded bees have been too active outside for their good. My hives are all strong, and well found in stores. Gave them pea-meal, flour candy, and also some made of the fine part of Indian meal (would not corn-flour or maizena be good?) and they consumed the latter first. They have taken little or no syrup, the weather being so cold. Spring stimulation even in the beginning of the middle of March, seems a doubtful benefit (?) and risk in such a variable climate as the British Isles. What about 'letting well alone?'—J. Crosbie Smith.

Co. Armagh.—My eight stocks have wintered well. Six face the east, and two due north. These last stand at the north side of the garden fence. The district is bleak and cold, being exposed to the winds that sweep over Lough Neagh, on the south edge of which I live. I mention these particulars, because some who keep to the plan of standing their hives in the snuggest and sunniest corner of their garden don't believe in my practice. But my bees were not so often on the wing this last winter as some other people's that I know; and the inhabitants of the two bar-framed hives that face the north were so seldom seen, even in the very mild days that we had in December and January, that I thought one was dead. Now all my stocks are in good condition, have plenty of stores, and the two with the north aspect are the most populous and the busiest on the spring flowers. I hope if we have a dry summer to have great results. At Raughlan, where the garden is about equally exposed with my own, the fair and intelligent bee-keeper acted on my advice two years back, and moved her bar-frame hives from a sunny wall, where they seldom did well, to the east of a cross-hedge, and set the flight holes towards the east, and the yield of beautiful 1-lb. sections, and pure extracted honey that has since been procured has changed my good friend and kind neighbour from a speculative experimentalist into an ardent believer in modern bee-craft.—H. W. Lett, *for Co. Armagh B.K.A.*

County Antrim, Glenmore, March 16th.—One hardly knows what to do with his bees' weather—hard frosts and snow—then a glorious day with the sun shining brightly makes it quite a puzzle for beginners. The few hives there are in this part are, as far as I have seen, in fairly good order, and with good attention and judicious feeding should be ready for the first honey flow. Breeding has also commenced. We are glad to see that we are to have a more frequent issue of the *Bee Journal*.—A. C. D.

[On the 27th we received further 'Echoes' from W. E. Best, F. W. Soames, C. T. Overton, C. Brown, J. Hewitt, W. E. Pooley, C. W. White, John Walton, S. G., F. H. Jones, G. W. W. S., and others, but our available space was then occupied. These Echoes are similar to those given, as the weather during the month has been very uniform throughout the kingdom. The record of individual experiences during the last remarkable month will prove of the greatest service to bee-keepers if they take the lessons it teaches to heart.]

Queries and Replies.

Query No. 556.—Please inform me, through your valuable paper, (1) if it be any use when bees are rising to ring them down with dust-pan and key, or is it only an old-fashioned way? and also, (2) how to know sealed honey from sealed brood?—C. Briggs, *Anderby.*

Reply to Query No. 556.—1. The 'tanging' or 'ringing' is a very old practice: it is mentioned by Aristotle and Virgil; and in many rural spots it is practised to the present day. It is considered to be a speedy and satisfactory mode of causing bees to settle. Most apiarians, however, are convinced that this noise is perfectly useless, and, consequently, discountenance it; and we may agree with this, if we believe with Sir John Lubbock, that bees have no capability of hearing. We are tempted to add another suggestion to the compilers of the new edition of the *Handbook*. In the frontispiece this 'tanging' process has *visibly* the support of the committee of the British Bee-keepers' Association. Could not the left-handed young lady, with shovel and spoon, be induced to desist, resting satisfied with the noise she has created, and with the opportunity she has enjoyed of sanctioning a time-honoured mistake? It can scarcely now be considered to be an element in 'modern bee-keeping.'—2. The bees generally store their honey in the outermost and coolest parts of the hive, the central or warmest part being reserved for the production of brood. The capping of the brood-cell is a light-brown, and more or less convex (that of the drone being more convex than that of the worker); while that of the honey-cell is paler and somewhat concave. The cap of the brood-cell is not of pure wax, but a mixture of bee-bread and wax: when seen under a microscope it is full of fine holes, so that the enclosed insects may have air. The lids of the honey-cells, on the other hand, are of pure wax, and therefore air-tight for the conservation of the honey, and they are slightly concave to resist the pressure of their contents.

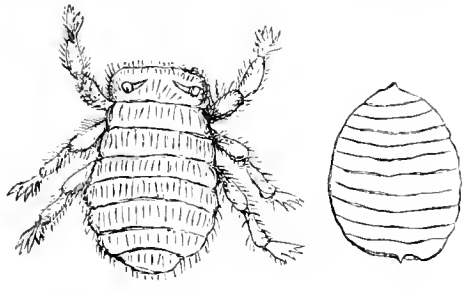
Query No. 557.—Are out-door rhododendrons worth planting for bees, or are they to be avoided? Those in our greenhouses yield a large amount of nectar, which the bees are very fond of, is it bad for honey?—Local Sec., *Wilts.*

Reply to Query No. 557.—The acrid narcotic properties of rhododendrons, the avoidance of the shrubs by cattle, hares, and rabbits, and the tradition that it was through eating the honey gathered from this class of plants, Azalea and Rhododendron, that the soldiers of Xenophon's army in the retreat of the Ten Thousand, sufferd severe sickness, should rather lead bee-keepers to suppress

than increase shrubs credited with the possession of such pernicious properties. Collected in small quantities, the nectar and pollen mixed with the produce of other flowers may have no injurious influence. It would be interesting to know how far the honey of the locality is affected by the rhododendrons and azaleas grown so extensively at Knap Hill and Bagshot. Bees certainly visit the flowers of rhododendrons, and the fragrant Indian kinds are especially attractive to them; but I certainly would not plant rhododendrons with the view of affording bees useful food.—W. I.

QUERY No. 558.—I have forwarded, by post, a small box containing two bees, with four small insects, to all appearance like lice. I first discovered them last summer in a bar-frame hive, between the wings of several bees. The queen had as many as three on her which I removed. Last week on examining the hive I found the queen dead with a number of bees, with several of these insects on the live bees. Would you kindly inform me in the April *Bee Journal* what they can be? Was the death of the queen caused by them? Would it be detrimental to the health and working of the bees? And what would be the remedy in such a case?—G. LEDGER, *Weybridge*.

REPLY TO QUERY No. 558.—The parasite on the bees you forwarded is the blind bee-louse (*cæca braula*); it was at one time called the 'Italian' bee-louse; but recent importations of queens from Cyprus and Syria prove that the Ligurians have no monopoly of them. Mr. Abbott has found as many as eighteen, Mr. Cowan twenty-three on the queen; the *Encyclopædia Britannica* mentions fifty or one hundred being found on one. In the south of Europe they worry and irritate, and devitalise the bees; but in the northern part of the Continent, and in England, they disappear soon after the queens are introduced, the climate not seeming favourable to their existence. Bee-keepers generally remove them from the queen by the aid of a sharp-pointed knife or a forceps. The bees in their flight can rid themselves of them, but they cling with great tenacity to the queen. Queens have been watched with two or three on them, but they have never given any indications of being incommoded by them. We should therefore conclude that the death of your queen was not caused by their presence. One remedy suggested to rid



IMAGO. LARVA.

bees of them is to make the entrance to the hive small, so that as the bees enter the parasites would be scraped off. Seen under a microscope they are most repulsive-looking creatures.

QUERY No. 559.—Will you kindly explain what is the best and simplest way to put sectional supers on skeps as referred to in page 218 of your February number? How many? and of what kind?—F. A. W.

REPLY TO QUERY No. 559.—You will find your query fully answered in the March number of the *Journal* in the description of the hive exhibited by the Rev. W. E. Burkitt, at the conclusion of the discussion on his paper. See page 242, column 1.

QUERY No. 560.—How ought I to treat a swarm of bees which behaves as follows? Two years ago I bought from Messrs. Neighbour a Philadelphia and a Cheshire hive, and put in each of them a good swarm of ordinary bees. This was in the middle of the summer of 1881. That year the bees in neither hive did much. The next year the bees in the Philadelphia hive swarmed once and gave me in supers 7½ lbs. of honey. They also made combs in the frames, but the last two combs were not finished or used in any way, and did not seem to be touched after about the beginning of June. The supers were put on about the middle of July. In the Cheshire hive no swarm at all issued, no honey was given, and the hive was only just filled. The queen first put in the Philadelphia hive was young, that first put in the Cheshire was two or three years old. People around seem to be very successful with their bees, but mine seem not to do anything. Even in the finest summer weather they do not seem to work. Can you at all guess what is wrong? I have consulted several local experts who can find no reason for the laziness of my hives.—C.

REPLY TO QUERY No. 560.—The Philadelphia hive was probably too large for the swarm you introduced—hence the bees were unable to fill it. In the second year the super prevented their doing so. The hive should always be well combed before a super is used. Bees when numerous, and but little honey coming in, will sometimes swarm, although their hive may not be filled with comb. Examine this hive, and close up the frames covered with bees by division-boards, feeding gently, and giving more frames of comb in the centre as the bees require room. In a bad season, like the last, your hive did well to give you a swarm and 7½ lbs. of super honey; but July was too late for supering unless your bees have access to heath. It is probable that the bees changed their queen in your Cheshire hive. If so it will, perhaps, prove your best stock during the coming season. With bar-frame hives and experts surely all this could have been ascertained. It is always advisable to supersede queens of three years. After that age they are almost worthless, as a rule. The only way to succeed in bee-keeping is to keep *strong stocks with young queens at their head*.

QUERY No. 561.—Seeing an advertisement in a county paper of 'first-class' hives, complete with frames, excluder, a dozen sections, quilt, &c., for 10*s.* 6*d.*, I sent for one; and I cannot say anything in its favour, but call it '*cheap* and nasty.' I put a swarm in, and arranged frames, &c., when I looked at it next in a fortnight (having been away that time) the frames had warped, and the bees had built their combs in all kinds of shapes. I want to know which is the best way of transferring the bees to another hive (Abbott's Combination); if I cut the combs so as to lift the frames separately, I cannot help killing a lot of bees, but what I am afraid of mostly is lest I should sacrifice the queen. I want to get the colony out of the mess in the safest possible manner, then burn the frames, and try Abbott's frames in it.—W. M., *Bridgend*.

REPLY TO QUERY No. 561.—From the description of the crooked combs in your cheap hive we imagine that the hive was not placed horizontally. This should always be done with a spirit-level, and the hive should then be raised one inch at the back to give it a slight forward pitch. The frames also should be nearly filled with foundation. The bees are compelled to build their combs in the direction which *gravity* enforces. We advise you to allow the hive to swarm, and, twenty-one days after the issue of the first swarm, to cut out the crooked combs, tie them straight into the frames, and return the bees. Any frames would warp if built in as you describe.

QUERY No. 562.—During the bitterly cold weather of last month the ground was covered with snow for a few days, and, in consequence, I confined my bees entirely to their hive, but I found, on examination, each day about eight or ten dead bees blocking the entrance. Was I right in preventing the bees from leaving the hive? Could I by any means have saved the lives of those that

perished? Suppose the snow remained on the ground for several weeks, what ought to be done?—J. G. Hollington, *Sussex.*

Reply to Query No. 562.—You did wrong in confining your bees. In severe weather when snow lies, all that is necessary is to shade the entrances from the sun's rays. When the entrances are closed the bees become excited and crowd to the doors, when many perish. In your case, however, there is little harm done. The normal mortality in a strong hive would be, at least, as great as you state.

Query No. 563.—*Best Time for Uniting and Transferring.*—1. I have some weak colonies in bar-frame hives, and think that they ought to be united to produce good results this year. When ought I to unite them? 2. I also have a couple of strong colonies in old straw skeps, and want to transfer them. How soon should this be done? The weather, of course, is at present far too severe; but I suppose about the middle of April would do.—Violetstown.

Reply to Query No. 563.—1. After the autumnal overhaul of the hives, bee-keepers set aside certain of their weakened stocks for uniting, so that thus mutually strengthened they may be enabled successfully to live through the winter; but through want of success in wintering and spring dwindling it is as frequently necessary to unite in spring those stocks which separately would have little hope of survival, and where the probability of profit would be exceedingly scanty. In *Modern Bee-keeping* we have a hint respecting uniting which it would be well to remember: it says, 'You may have four hives neither of them strong enough to gather surplus. Before the honey-glut comes set your four lots into three, or even two, and filled boxes to an extent that will surprise you will reward your pains.' 2. The best time for transferring is twenty-one days after swarming. For mode of transferring consult Abbott's leaflet on 'Transferring.'

Query No. 564.—Is the vapour or breath of bees unhealthy like that of plants at night and animals? My reason for asking is, that I want to keep an observatory hive inside the window of a bedroom, but fear that the exhalation from so many living things might be injurious to the occupants of the room at night. Do bees give off carbonic acid? and if so, would it not be absorbed by the honey to its injury.—J. S. T., *Wexford, Ireland.*

Reply to Query No. 564.—There could be no injury to health arising from placing an observatory hive in a bedroom during the summer months, when the bees thoroughly ventilate their hives by fanning at the entrance. We should advise you not to attempt *wintering* bees in an observatory hive, since glass is the worst of all materials for winter hives. A certain amount of carbonic acid gas is, no doubt, given off by the bees, for getting rid of which Mr. Cowan has invented a winter ventilator—see his *British Bee-keepers' Guide Book*, p. 121. In practice, however, we find that the 'quilt,' or flannel packing, over the top of the frames, ventilates sufficiently. In all well-prepared winter hives no unsealed honey is allowed; carbonic acid gas can do no harm to the sealed or capped honey. It is so easy a matter to transfer frames and bees from an observatory hive to a double-walled wooden hive, and to render them snug and warm by chaff-packing, that we strongly dissuade you from attempting to winter in the observatory.

Query No. 565.—Will you please put these queries forward to be answered in next *Journal*? 1. Referring to the comments on carbolic acid in this month's *Journal*, don't you think if some of it (weakened) was rubbed on your hands when opening a hive it would prevent the bees stinging? 2. Where hives are in a row from four to six feet asunder, nearly all a similar shape, do you think if the cover or roof of porch, which runs the full width of hive-front (size about 24 in. × 6 in.), if this was painted a distinct colour, say black, white, yellow, red, &c., and the remainder of all the hives green, would it (the porch-cover) be a distinctive enough mark to ensure the bees knowing their own hives?—F. J.

Reply to Query No. 565.—1. Carbolic acid will prevent the bees from stinging the hands, but, however weak the solution, we think 'the remedy worse than the disease,' since it renders the skin dry and uncomfortable for days afterwards; and, indeed, there is no necessity for its use thus. Bees will never, or *very rarely*, attack the *naked* hands if the motions are not hurried. Let all motions be slow and measured at first, increasing in speed as you proceed, but never *jerky:* and with a little practice you will soon be able to manipulate with impunity, at least so far as the *hands* are concerned. We strongly advise you never to wear gloves, for if woollen they irritate the bees, and the indiarubber gloves are most unpleasant from keeping in the heat and perspiration. 2. For hives situated as yours are we should certainly paint them in various colours. Sir John Lubbock has proved—to his own satisfaction, at all events—that bees distinguish colour. Any way it can do no harm.

Query No. 566.—It being much more easy and less costing for an amateur in making a hive to put in a fixed floor-board than to adjust a loose one. Is the latter worth the extra expense and trouble? I find practical bee-keepers who say not, as moveable floor-boards are *very seldom* required to be detached, especially in frame-hives. —G. M., *Ilkley.*

Reply to Query No. 566.—Hives of the old Woodbury type, which are only of sufficient capacity for eight to ten frames, should be furnished with moveable floor-boards to facilitate the removal of any *débris* that may accumulate during winter; but hives intended for use on the longitudinal principle, now becoming general, and long enough to hold sixteen to twenty frames, are sufficiently convenient with fixed floors. At a time when a floor-board will require cleaning there will seldom be more than five or six frames occupied by bees, and these can be readily passed to the back of the hive while the front portion is being brushed or scraped. Any dirt can either be brushed out at the entrance or backwards, to be removed after the bees are replaced in their original position. The use of a fixed floor-board not only renders the hive stronger and more easily made, but adds to the comfort of the bees by preventing draughts, and affording less harbour for wax-moths and earwigs.

Query No. 567.—Will you kindly inform me in next *Journal* whether or not (in Class 10 of the Prize Schedule for Annual (British Show) it is necessary for the amateur to make his own frames, as it only says the work of making the 'hive' must be executed by the exhibitor? If so, supposing he put Dr. Pine's removeable ends to them, whether that would be objected to or not, as I think about competing? Also, please say whether two (one painted and one in the wood) of the same pattern could be shown without an additional entrance-fee having to be paid?—Amateur.

Reply to Query No. 567.—The frames are part of the hive, therefore should be made by the amateur. There would not be any objection to putting Pine's removeable ends, as these could not be made by an amateur, being registered. An entrance-fee would have to be paid for each entry, as stated on the Prize List.

Query No. 568.—1. What would be the objection to having the bars on top of frame, coming right through the hive, notches being cut in the walls of the hive for that purpose? 2. What is the best time to put bees into an observatory hive? Also, would it be better to put a comb containing eggs into a small observatory-hive of three bars? or to put a mature queen as well?—Mellarius.

Reply to Query No. 568.—1. The plan you suggest of cutting notches in the top sides of hive for frame ends to pass through was adopted by Mr. Pettitt in 1866, and was

considered an improvement on the Woodbury notches. They have, however, been long since abandoned, for the same reason as the Woodbury notches, viz., on account of the propolization, and because it is impossible to move the frames laterally. 2. Any time during the summer months would do to stock an observatory hive. You could introduce either a small swarm or make an artificial swarm by removing a frame containing the queen from a hive and placing this into the observatory hive, filling it up with frames and bees from the frame-hive. Or you could introduce frames of eggs and brood with bees into the observatory hive, and in this way you would have the opportunity of watching the formation of queen-cells.

Query No. 569.—Is there any reader of the *British Bee-keepers' Journal* who has made the flour-candy from the recipe as given in the *British Bee-keepers' Guide-Book*, by Thomas William Cowan, p. 121? I made an attempt the other day, but failed to produce a substance to run into cakes, or even to pour out of the saucepan, for before I had stirred in half of the flour mentioned it was as dry as bread-crumb. As I followed the recipe as I thought to the letter, I am anxious to know which is wrong, I or the recipe.—Thomas Smith, *The Gardens, Sydney Park.*

Reply to Query No. 569.—We have used the recipe and have had no difficulty in producing the flour-candy. The fault is in boiling too long, and if a little more water had been added as soon as it showed signs of turning the crystallisation of the sugar would have been prevented. If the boiling is stopped when the syrup just sets if put out on a cold plate, it will do, but two or three minutes longer will cause it to crystallise. It is not sufficient only to put together the proper quantity of sugar and water, but all the other instructions in the recipe should be fully carried out.

[Several Replies and Queries have been crowded out, which will be forwarded to the Querists.]

NOTICES TO CORRESPONDENTS & INQUIRERS.

D. W. Brearley, *Denton, Northampton.—Identifying plants in Dzierzon's Rational Bee-keeping.*—We have only two Buckthorns which can be included in our English flora, Rhamnus Frangula and R. Catharticus. Hippophaë rhamnoides is called Sea Buckthorn (a shrub common on the sand-banks of the Lincolnshire coast); it may be the plant recommended, as it would make a good hedge and flowers freely. The Eye-bright mentioned is no doubt the plant suggested, Bartsia odontites: it is commonly called Red Eyebright. There are several Continental species of Euphrasia, but we have only one distinct kind in Britain, Euphrasia officinalis.

A Constant Reader, *Buntingford.*—1. *Barley sugar.*—Our recipe for making barley sugar will be found on p. 186, Vol. VIII.; and if made in accordance thereto, it will when poured thinly into a shallow tin, and when set, the tin being struck with the palm of the hand, the barley sugar should split and fly out. If to be poured into saucers or dishes, place paper on them, and stickiness will be avoided. 2. *Sections.*—The central sections should be removed as soon as completed, those partially filled being closed up, while empty ones should be placed to the right and left. There need be no difficulty in shifting the position of the sections. Seize a favourable opportunity while the 'busy bees' are 'improving the shining hour,' and few bees are left at home, blow a little smoke at the top, prise up the sections, repeat the dose below, take each section firmly but gently, and clear it of bees, and place the sections as desired. 3. *Honeycomb in straw supers and sections.*—We are not sure that we agree with you in preferring the former to the latter. *Chacun à son goût.* 4. No; if at all troublesome to you.

C. E. Binder, *Oundle.—Uniting a swarm to a stock and placing both in a Cheshire hive.*—The swarm having been hived, let it be carried to the front of the stock to which it is to be united, where temporarily it may be set upon the ground. Towards evening drive the bees of the stock into an empty hive, and add the swarm to it, both being sprinkled with scented syrup. The combs of the skep should at once be transferred, great care being taken that the brood is not chilled. The united swarm and stock should then be thrown into the hive, and the combs returned to them, and the hive covered down. Great care and gentleness should be exercised in returning the combs to avoid crushing the bees, which will gradually give way, and soon take possession of the hive.

Bee-keeping Experiences; *or the Autobiography of a Judge.*—Will the writer of a paper bearing this title favour us with his name and address?

W. B.—1. We are of opinion that the recommendation to make hives of cedar may be safely followed. 2. The dimensions of bar-frame as determined by the B.B.K.A. are,—17 inches long (inclusive of the side extensions) by $8\frac{1}{2}$ inches deep, the top bar $\frac{3}{8}$, bottom bar $\frac{1}{8}$, and the side bar $\frac{1}{4}$ thick.

Goonhilly, *Cornwall.*—The natural inference from the indisposition of your bees to take the syrup in larger quantities is that it is too cold, or it may possibly be burnt; but, more probably, the cluster is located at a distance from the feed-hole, and the bees are disinclined to cross over the intervening cold comb.

J. P. A.—The bees would work out the plain sheets of wax, but there is a probability of their beginning to do so from the bottom edge; therefore, great caution should be exercised in securely fixing them to the bar.

Bee Robbin.—1. The distance-keeper you forward is new so far as it is made of wood and removeable. We should be pleased to accept your offer of a description of your mode of making it. 2. The sections could be worked in the manner described; but we prefer them in the rear, which would require but one divider.

Tyro.—If you place your last season's honey, as it is, over the feed-hole, it will be utilised by the bees.

J. M. N.—1. On the first fine day examine your hives, and if the frames, on which the bees have been crowded, are well filled with brood, insert an empty frame of worker-comb in the centre of each hive so filled. Examine every five or six days, and supply further comb, as required. Failing worker-comb we should give foundation in a similar manner, as the season advances, and feed more copiously. Unseal a few honey-cells every week in your Ligurian stock. Their quietness is a good sign provided the population is numerous. 2. See Reply to Query No. 556. 3. We should not expect much, if any, benefit from a bog at the distance of three miles. Bees will rarely fly a distance of three miles unless pinched for food nearer home.

F. W. E.—*Removing Hives.*—While the weather is comparatively cold hives may generally be removed the distance mentioned (fifty yards) with impunity. It would be desirable to carry them in hand-barrows, so that the bees should not experience any jolting. But if the weather permit the bees to fly abroad a sudden removal of even a few yards may cause considerable loss. Great care should then be taken to remove them very gradually, day by day, to the desired location.

Goonhilly.—*The Uses of Borage.*—Mr. T. Beale, of Salperton Park, Cheltenham, on p. 118, Vol. VIII. of the *Journal*, says, 'I have found that stalks of borage cut up and mixed with chaff are eaten most greedily by horses; so after the bees are done with it and the seed is saved there is most valuable food—far superior to comfrey—for the cattle.'

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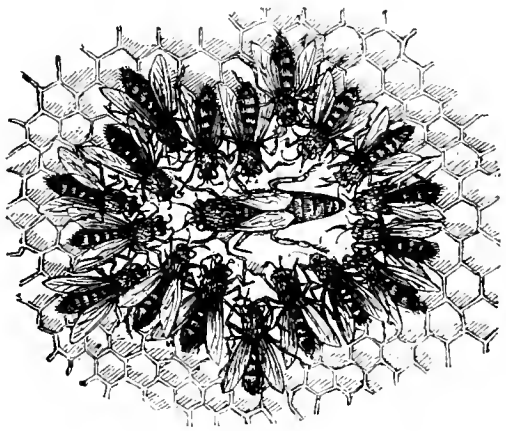

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MAY.

The Dual System does not seem to work very satisfactorily in the present day. The Dual Control exercised over the finances of Egypt by England and France has been dissolved with general approval. The dual garment or divided skirt does not seem to make much way in popular estimation; and the dual system, where it has been adopted in our County Bee-keepers' Associations, seems to be making way for a less complex and more practicable mode of procedure.

It has been found a mistake to join two counties together to form one Association. One county is certainly quite as much as one secretary can work properly and to his own satisfaction. A diffidence as to the interest likely to be taken in bee-keeping, and the number of members likely to join the Association, has no doubt been at the root of the desire to secure as large an area as possible from which subscriptions can be collected; but this diffidence is soon dispelled where the organization of an Association is completed, and the work begins in good earnest. A dual County Association is always liable to a strong local society taking up an independent position and claiming to be the recognised Association of the county in which its members dwell. This has been the case in the Association which started under the name of Lancashire and Cheshire. The Altrincham and Bowdon District Society has discovered its own strength, and has claimed the privileges and title of the Cheshire County Association. Thus we have in existence at one and the same moment a 'Cheshire' and a 'Lancashire and Cheshire' Association, which is certainly an anomaly; and we trust that the dual Association, which is not yet a year old, will have the good sense to leave Cheshire in the hands of its own Association, and devote itself to working Lancashire as a county with such a teeming population deserves to be worked. If time is suffered to elapse, it may be found that it is not such an easy matter to separate two County Associations which are thoroughly organized. The divorce between Berks and Bucks was certainly effected by mutual consent without any suspicion of incompatibility of temper, and without the slightest indication of bad feeling on either side; but we cannot promise that such wil always be the case, there being, as Sam Slick re marked, 'a deal of human natur' in man.'

The same consideration applies to the dual system of patrons and presidents in some County Associations, which presents great difficulties to the British Bee-keepers' Association in its dealings with its affiliated Branches. All presidents of County Associations are *ex officio* vice-presidents of the British or Central Association; but it is not desirable to have two vice-presidents from one County Association, and if the president is to be honoured, what is to become of the patron? On the other hand, the British Association naturally wishes to have the chief of the County Association for one of its vice-presidents, but if the ticket of membership is sent to the patron, there is a chance of the president feeling slighted and offended.

Still more objectionable does the dual system appear in the case of county secretaries. We have always found the work of a County Association to make much greater progress in the hands of one secretary than of two joint secretaries. The responsibility when divided is less sensibly felt, and there is therefore less incentive to vigorous action. Two county secretaries, like two churchwardens, can never act independently. In nine cases out of ten the one is waiting for the other to take any decisive step. They always remind us of the old couplet,—

> 'Lord Chatham, with his sword full drawn,
> Was waiting for Sir Richard Strachan;
> Sir Richard, longing to be at 'im,
> Was waiting for the Earl of Chatham.'

In one more point the dual system does not seem to work satisfactorily. Each County Association affiliated with the British is entitled to send two of its members to the Quarterly Conference of County Representatives with the Committee of the British Bee-keepers' Association. The utility of these Conferences is sadly marred by the paucity of representatives who attend them, and by the irregularity of the attendance of the few who do present themselves. There are great difficulties, no doubt, in the way of representatives who have to come to London from a long distance; but we fancy that these difficulties might be easily overcome if the Committee were intent to exchange their dual representation for a single representation, and if the expenses, or at least the travelling expenses, of his

quarterly visit to London, were defrayed either by County Association or by the County and the British Association acting conjointly. The importance of these Conferences and their utility in promoting bee-keeping throughout the United Kingdom will become more and more manifest with each succeeding year.

With regard, then, to the dual system in our County Bee-keepers' Associations we shall not advise any half measures, nor content ourselves with reforming it 'indifferently,' but say, in the words of Hamlet to the stage-players, 'Oh, reform it altogether.' Have one Association for each county; one head over that Association: one County representative, the expenses of whose journey to London shall not fall upon himself; and one County secretary-in-chief, to whom the district secretaries can look with confidence and certainty for assistance and support in all cases.

QUEEN-REARING.

Bee-keeping can never be carried on profitably unless the bee-keeper always keeps his stocks strong, so as to be ready with a large population to take advantage of any flow of honey during the season. Many know very well, and will allow, that this is quite true, but yet find a difficulty in keeping their stocks up to the proper strength. This is often the case if queens of inferior breeding powers are allowed to occupy the hive. It has been repeatedly pointed out that to have strong stocks you require prolific queens. Queens will live to four or five years, and some bee-keepers think that they are just as good at four years as they are at one or two. This, however, is contrary to my experience, for I have found that a queen may have her laying powers quite exhausted in two years if she is stimulated to lay a large number of eggs. It is now a great many years ago since I pointed out that the secret of success was in having young prolific queens, and that I replaced all mine at the end of the second season. I have had no reason to alter this practice now, after so many years' experience. We can safely lay it down as a rule that the most desirable points in a queen are youth and prolificness, and in those of her offspring that they should be hardy, good workers, gentle, and lastly beautiful. I should, and do, however, sacrifice the last quality in favour of the others, and I have some Ligurians almost as dark as black bees, but they have qualities which make me prefer them to the brighter Ligurians. Now to get good queens they must be properly bred and selected, and the idea that you are going to improve your bees by merely purchasing for a certain sum a Ligurian queen anywhere and of anyone must be got rid of. There are undoubtedly a great many good imported queens, and there are also a great many equally worthless ones, and the bee-keeper, if he wishes for the best results, must himself breed queens and form his own strain of bees; and just as poultry is known by the name of the breeder who was the originator of the strain, in suchlike manner bees should be recognised as of 'Brown's strain,' or 'Thomas' strain.' Supposing we have got some of our best colonies of bees in good condition in the spring, and by this I mean that about the beginning of April the hives should be full of bees, and having brood on most, if not all the frames, we may prepare for queen-rearing about that time. We must select our very best colony, having the best queen we possess, and gradually build it up to the proper strength by spreading the brood and by stimulative feeding. We must be careful to cut out all the drone-comb and remove any frames containing drone-comb and replace them with frames of only worker-comb, because from this hive we shall raise our queens and obtain the drones from another hive, and in this manner prevent that in-and-in breeding, which is so detrimental if queens and drones are bred in one hive. Then we select our next best stock and treat this for supplying drones. This should also be stimulated in such a way as to have the hive filled with bees and brood on most of the combs. When we find this to be the case, we remove one or two of the brood-frames from the middle of the hive and replace them with frames containing drone-comb. By feeding more rapidly, the queen at once fills the drone-cells with eggs which will produce drones at the time they will be wanted for fertilising the queens. The best plan is to commence queen-cells as soon as drones begin to hatch out, when you should remove the queen from the other hive containing only worker brood. The queen can be given to another colony having an inferior one, or can be utilised in making a swarm. After the queen has been removed examine some of the combs, and cut off the edges from one containing eggs so as to induce the bees to start queen-cells from cells containing eggs, and not from those with grubs; in fact, I so much prefer queens started from the egg that I remove all queen-cells found containing larvæ. The comb we have thus prepared is placed in the centre of the hive, and the colony at once starts queen-cells. We can have a queen-cell started at any particular part of the comb by enlarging the cell-mouth with a piece of wood bevelled in the shape of a cone, and this will generally ensure one being started at that particular place. A large number of queen-cells will be commenced, and if we do not require them all the earliest ones should be selected and the others destroyed.

In about eight or nine days from starting the queen-cells, the bee-keeper will be ready to form his nuclei. These can be formed from any of the other hives containing young bees. Two frames containing brood and honey will do for a nucleus, but three frames would be better, because if these are well covered with bees, they could keep the hive warmer. Take care not to remove the queen with the frames, and as all the old bees will return to the stock hive, shake or brush the young bees from one or two other combs into the nucleus, or about as many as will well cover the frames, and keep up the proper temperature. In this way form as many nuclei as you have queen-cells to introduce. Now cut out the queen-cells very carefully, so as not to damage them in the slightest degree, with a very sharp knife. In cutting out the queen-cell leave a small piece of the comb attached to it, and by this pin it on to a comb in the nucleus with its point downwards. Close up the space with two division-boards, cover with a quilt, feed with syrup, and keep the nucleus well supplied with bees, and in three or four days the queens will begin to hatch, and in about a week or ten days they will be fertilised by the drones we have raised in the other hive, and which would be flying freely at this time. The bee-keeper should put into the nucleus a comb containing brood about the time the queen flies out for fertilisation, or the bees may leave with the queen, and so be lost. When they have brood, however, they will not forsake it. When the queens have commenced to lay, they can be introduced to hives requiring them. By cutting out the drone-comb from other hives we can prevent the formation of drone-brood, and more thoroughly insure the pure fertilisation of our queens by our selected drones.

In this way queens are raised under the most natural and favourable conditions, and are far superior to those from queen-cells started in nuclei with a small lot of bees, although this plan is extensively adopted by breeders. Even some of the queens bred under the most favourable circumstances will not turn out as well as we should like them. We must not scruple to destroy

these, for if we want to improve the race of bees, it will only be by continually selecting the best, and only breeding from those. If we in this way breed, and always have on hand, young and prolific queens to replace those getting aged, we shall have no difficulty in keeping our stocks strong in the autumn, and of making them strong in the spring.—THOS. WM. COWAN, *Comptons Lea, Horsham.*

BLOW'S ANGLO-CYPRIAN HIVE.

The defects in wintering qualities of the ordinary bar-frame hives and the many complaints and great loss of stocks consequent have induced me to consider whether these defects could not be remedied, and the result is the Anglo-Cyprian hive. As a receptacle for bees in winter the bar-frame hive is an extremely bad contrivance, contrasting most unfavourably with the ordinary box-hive or the straw skep. In the bar-frame hives constant draught is circulating round the ends of the frames, and to avoid this one has to go to great trouble. The Giotto hive, which has been devised as a remedy and is at the present day in its most perfect form, is admitted to be by all who have used it, to say the least, a bee-crusher, and the great amount of propolisation to which the frames are subject renders manipulation most difficult,—a hammer and chisel being usually required to separate the frames.

In the straw skep we find the bees attach their combs to the sides of the skep to about half their depth, and consequently the cluster of bees winters in what is practically a sealed chamber.

Now in the clay cylinders in use as hives in the island of Cyprus we find the bees build their combs parallel to the ends of the cylinders and attach them half-way down, and here again we see that the bees winter in practically a sealed chamber. In examining the bees in Cyprus I was extremely struck with the immense strength of the stocks in the winter, and came to the conclusion that it was owing in a great measure to this particular arrangement of the combs.

I will now describe the Anglo-Cyprian hive, and

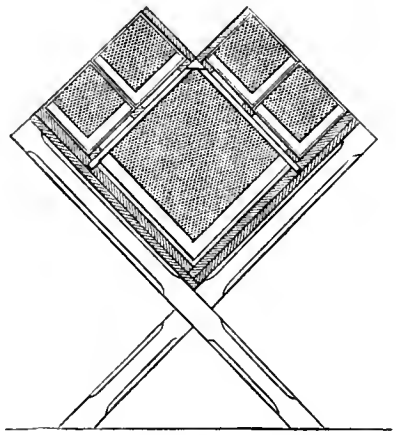


Fig. 1.

endeavour to show that this hive contains all the good wintering qualities of the straw skep and of the cylinder hive and all the essential points of the modern bar-frame hive, with none of its disadvantages in wintering. The hive consists of a trough on two pairs of legs. The frames consist of two top bars with ears (these being furnished with metal ends or

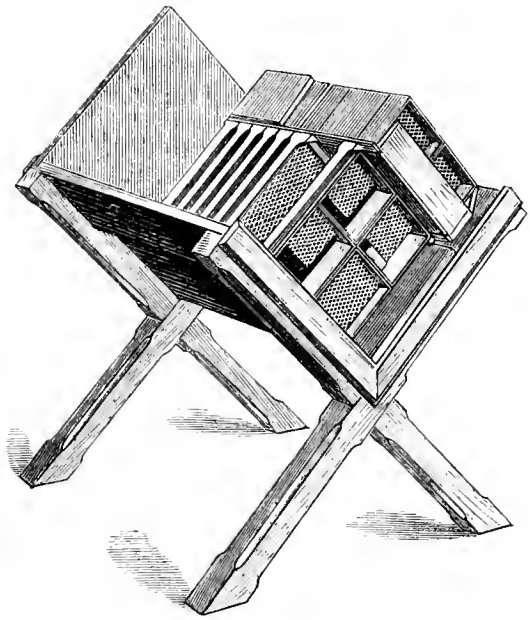


Fig. 2.

wood-blocks to keep spacing accurate) and two bottom bars which fit into the trough or body of the hive. The sheet of foundation is fastened to the under side of both top bars, and as the top bars are covered with the quilt the bees winter in this closed chamber most admirably. The ends of the top bars rest or run upon the sides of the trough or body hive. The section of hive (fig. 1) will explain itself more clearly than a page of description. With these bars the extractor can be easily used, and the raising of sections in the body hive is extremely simple. I

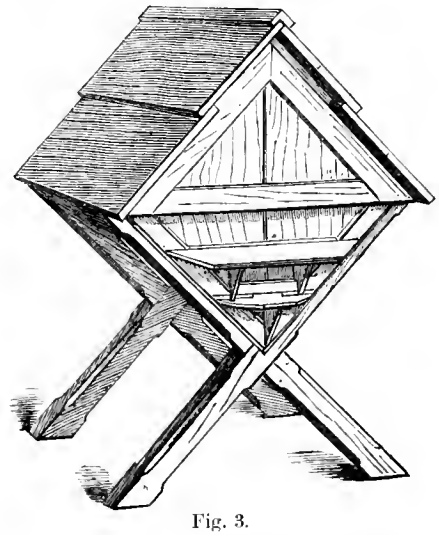


Fig. 3.

claim that on top of this form of hive a larger number of sections can be placed than on any other, and that the bees will enter them more readily.

Figure 2 will explain the arrangement of the comb in the bars, the sections in the bars and the sectional supers. The end, it will be observed, is removed to facilitate manipulation. By means of a dummy the stock can be expanded or contracted to any extent, and double or triple hives can be easily worked. Figure 3 gives a view of the hive when closed, and everyone, I think, will agree with me that it is a much more picturesque object than the bar-frame hive. The idea of all the arrangements being on corner is, so far as I am aware, entirely novel. I am indebted to Mr. William Raitt, of Blairgowrie, for many of the most important particulars and assistance in this invention.—T. B. Blow, *Welwyn, Herts.*

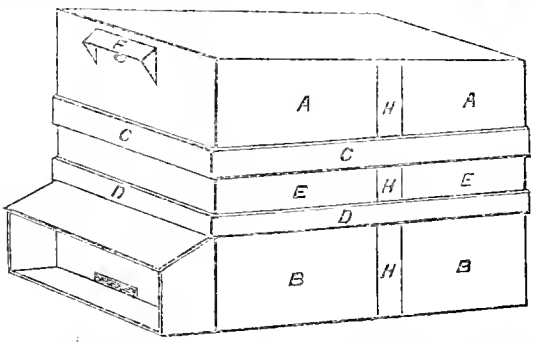
CHEAP HIVES.

One means of getting modern bee-keeping taken up is by making its adoption within reach of those whose means will not allow them to purchase expensive hives and appliances. From what I know of the cost of wood, &c., and now that so much is done by machinery, I believe that hives, &c., could and ought to be made cheaper than they are. Many are frightened at the first cost, and in a bad year like 1882 there was no gain almost made even where economy was practised. The cheaper goods are made, the greater the quantity will be sold; but then they should not be 'cheap and nasty.' The manufacturer's catalogues of prices this season in many instances show a step in the right direction, and that will induce many to buy hives and other bee appliances.

During the winter I have been experimenting as to what could be done in making cheap hives out of boxes, packing-cases, &c.: and with a little ingenuity and trouble it is surprising what can be done, and after the first attempt or two it becomes much easier and improvement increases. Certainly it is easier to make hives out of new boards than to change boxes into hives to take the Standard frame; if the latter cannot be done it should not be encouraged. In the first place, a well-made hive should be purchased or borrowed to act as a guide, or beginners will be almost sure to go wrong if they attempt to follow directions in books alone, though the latter should be well studied also. I have in some cases knocked packing-cases to pieces and then re-made them into hives. In adopting boxes I have got mine principally from grocers and hucksters, these being cheap and plenty. Those used by hardware merchants are generally better, but dearer than new planks generally. I have three hives in use since last spring made of boxes, and neither they nor any of my hives (all made by myself save one) have made a thimbleful of water altogether. Don't spare the nails, and give them a slant when driving, and they will take a good hold and not draw open. Dab the paint well into the joints; and if you have the slightest suspicion of any spot that wet might get through, mix putty and paint together and press it well in. Round knots that are likely to drop out should have a couple of tacks inserted at each side of the board. Nailing on laths or plinths to cover joints should have nails driven in at least every three inches apart, and clenched on the other side. I am of course writing for those who are beginning and not for those amateurs who can make a hive in professional style. These hives are for use (though they do not look badly either), and not what are dubbed 'ornamental,' and that are 'all rottenness within,' like some have had the misfortune to purchase in the Green Isle.

In adopting boxes absolute uniformity is out of the question unless one particular make of box is adopted.

I give you a sketch that represents most of my hives made from boxes. I sometimes made them where the side walls were high enough, by using one box for the body and a similar one for the upper part. It is better if the box is too high than too low, as it can be cut down to within a quarter of an inch of the top of the frames and



then planed level with them. The above was made from four brandy-boxes, which are always very uniform if from same maker. The lids of the two lower ones were taken off, as were also one end of all the boxes. B B were then joined together by nailing a plinth all round, as at D D. The other two boxes were then placed on top inside the plinths D D, to which they were well nailed together. I then drew a line all round the upper boxes at E E. It was cut so that the front line was closer to the top than the back line: the top portion cut off was then reversed-from back to front, which gave the roof a good slope. Half the upper boxes were thus joined to the lower boxes by the plinths D D. The upper half of the top boxes then had the plinths E E nailed on: the portion of the plinths that is to slip over the hive at E E must have its inside planed away to allow it to drop down freely. The floor-board may be left fixed, and be doubled by other boards, which should be made to project so as to form the alighting-board. The sides of the porch are nailed to the sides of the hive and the floor-board, which gives great strength. As the tops of the boxes do not project, so as to prevent rain driving in through the ventilators, I made small dormers to protect them at each end, as at B. The piece of zinc covering the ventilator is only fastened by one nail at top so that it can be pushed to one side to allow bees out that may have got outside the quilt while manipulating. This hive is made on the principle of Abbott's Irish or Copyable hive, the sides extending above the tops of the frames, which is much easier to make in every way than hives made for using crates over the frames, as it is difficult for most amateurs to make the hive level with the top of the frames so that the crate will set evenly and closely, which is so essential to prevent escape of heat.

The above hive will be 30 or 36 in. long according to the way the boxes are joined, and will give walls about 2½ in. thick altogether. The four boxes cost 1*s.*, and the lids and a portion of another sort of box formed the extra thickness of the floor and the inside walls: altogether, with laths for plinths and 10 frames made from another box, 1*s.* 9*d.*; paint and putty about 1*s.*; three layers of ticking and a well-washed old sack, 6*d.*; nails, 2*d.*; canvas at 8*d.* per square yard, to cover roof, 4*d.*: total, 3*s.* 9*d.*

I forgot to mention that H H H is canvas, tin, or wood, closely nailed on and painted to cover where boxes are joined. India tea-chests make excellent hives; they measure 20 in. to 25 in. long, 17 in. to 20 in. deep, and about 18 in. wide, so you have the option of making the space between the walls vary according to the way it is used. Here the boxes can be cut down close to the frame and then planed level with them. The portion that comes off can be used for a top all in one, or divided so as to make a middle piece or riser, and a top. The middle piece is of great advantage in manipulating, as the quilts or chaff cushions can be securely arranged. Except

in long hives it is easier to cut the upper box level all round, and allow the top to be flat, and nail and paint it well, or use canvas or roofing paper. Leaving H H out of above sketch it will also represent a hive made of two brandy-cases: two cases were joined together at D D and then cut and planed level with the frame-tops, the portion of the upper box cut off forming the roof A A. Or three cases can be used: two joined together, then cut down as above, the portion coming off making the middle piece, and the third box the cover: cost about 1*s.* 6*d.* Two salmon or lobster boxes joined together by knocking the sides out, make a good hive 24 in. long and 19 in. wide, with two more above, or other boxes knocked to pieces to form the roof: complete for work at about 2*s.* or 2*s.* 6*d.* Boxes that hold American tinned preserved goods are excellent, the wood being thick and pine. I have got all these boxes at prices ranging from 2*d.* to 8*d.* each. I have made a number of hives out of various sorts of boxes varying in price from 1*s.* 6*d.* to 3*s.* or 4*s.* Crates to hold sections can be made in the same way for a few pence; and frames ditto, though it would be best to purchase them, as accuracy is so necessary, and those for distance-pins can be got for one penny each in Ireland, those with broad shoulders costing more than double.

Frames with distance-pins are the easiest to make or to work, as broad shoulders in any shape are a nuisance. —J. Crosbie Smith, *Passage West, County Cork.*

(*To be continued.*)

USEFUL HINTS.

Preventible Losses.—Sad cries are heard of bee-losses. The sooner bee-keepers recognise that *all* such losses are preventible the better. Abbott's *Leaflets*, Cowan's *Wintering Bees*, *Modern Bee-keeping*, and the *B. B. Journal passim*, all give ample instructions whereby the strength and health of stocks are to be maintained from autumn to spring.

Feeding in Cold Weather.—The old prejudice against feeding in the cold weather has caused many stocks to be starved. Stores supposed to be sufficient for an ordinary season do in a mild season become exhausted, and then, on the recurrence of a sudden chill, the owner says, 'I dare not open my hive in the winter.' The bees meanwhile are driven back to a close cluster, leaving young brood uncovered, and being themselves beyond reach of the remaining food they rapidly dwindle and starve.

Causes of Mischief.—An examination of many hives has shown that there have been three principal causes of mischief: 1. Too much room left in the brood nest. 2. Food supply too widely diffused over the combs instead of being concentrated above and around the cluster. 3. Failure to renew the food supply after the period of activity in February. As to No. 1 there has been a fruitful cause of loss. In frame-hives three, or at most four frames (properly provided with winter passages) will always be sufficient for the strongest stocks to winter on; and if the combs are fully covered, the young brood will suffer no chill. The bees at the top will pass on the food to those below, or gradually change places with them. No. 2 applies chiefly to skeps, these being incapable of contraction are left with honey in every comb, but the bees cling chiefly to one side, and having consumed the store there do not return to the other combs unless very warm weather follow, and, meantime, may starve in the presence of plenty. But No. 3 is the most fatal cause. It is of course desirable that wintering bees should not be disturbed; that hives should not be opened in cold weather, &c., &c.; but these are better than to let the poor bees starve. When, therefore, you have reason to suppose that the food supply has been much reduced, it is better at once to face the fact whatever is the condition of the thermometer, and give an additional supply. There are few days when a hive may not be opened for a few seconds without risk, and, all things being ready, a feeder may be removed and another inserted in its place in a very limited time. The Americans take their hives in-doors and examine them under cover, which is not so easy in our country; but what is there to prevent our *taking the room to the hive* (in the form of a folding tent), and making the necessary examination therein without removing them from their stands?

Bees have had a fortnight of useful spring work, but while I write (April 23rd) there is a return of hail and snow.—D. S.

WEAK STOCKS.

A question has been put during the past month, 'Is it possible for a healthy, fertile queen to raise brood with a very weak stock?' and as this is a season in which many weak stocks will be found, often where least expected, a few observations on the question may not be objectionable. 'Weakness' and strength in bees are relative terms, and may be variously applied at different times and in reference to the object in view. It is customary to advise that all weak stocks should be united, and it is good off-hand teaching, gets rid of the question, and does not tempt beginners to try experiments that may be costly, and are almost certain to fail, because of the inexperience of the experimentalists. There are, however, cases in which at this time of year in which the advice to unite weak stocks may be essentially bad, for the stocks, though *very* weak, may contain healthy, fertile queens of more than ordinary value, and such as could not be replaced without considerable outlay, if at all, at an early period in the spring. To unite such 'stocks' would cause the loss of the queens, and the profitable outcome of the proceeding would be highly problematical. But to return. The question is, in effect, Can a very weak stock raise brood? and this raises another question, viz., What is a *very* weak stock? and involves the consideration of weakness of the bees individually, weakness of numbers, and weakness in stores. For the purposes of argument it will be fair to consider 'a very weak stock' as consisting of, say, a teacupful of bees, about two thousand, of average vitality, and fairly supplied with stores; and there is little doubt but that under favourable circumstances this small remnant of bees would be able to raise brood and perpetuate their existence; but under adverse conditions such as have prevailed during the past month the attempt to do so would lead to their inevitable destruction. The reason of this will be evident when the inner phases of bee existence and the process of breeding are considered. Bees, when they can cluster closely, are able to exist in a comparatively low temperature, the

degree varying with their number, but they cannot raise brood except they are able to maintain a temperature of nearly 100° Fahrenheit about the brood-nest. Large stocks are able to do this in almost any condition of outdoor temperature, but weak stocks, except under favourable conditions, cannot attain so great heat. But supposing the conditions to be favourable for a time, and that a weak stock has a batch of brood under care, and that suddenly the temperature falls as it has during the past month, then there will be ruin in the colony, for the smallness of the number of bees precludes the possibility of their maintaining the heat necessary for the preservation of the brood, and it will perish, while the bees themselves will be so much the weaker because of the vitality they will have expended in their efforts to produce young bees. There is another feature herein which is not sufficiently understood, and that is, that the brood in itself does not generate life-supporting heat, and except the comparatively few that are ready to hatch its presence in a weak hive in cold weather causes a drain upon the heat-producing power of the bees, and abstracts from them that which is often necessary to their own well-being. A weak stock without brood can pack itself into the cells and into the spaces between the combs, forming a dense ball of bees that by virtue of its compactness and the heat-retaining power of the combs (in a well-arranged hive) will be able to withstand the effects of cold for a long period; but with a mass of brood in their centre, which is not heat-producing, except in slight degree, and with their cluster much enlarged through the presence of the brood, their power to withstand cold is much diminished, and the chances are greatly against their survival. From this it will appear that though a mere nucleus may be *capable* of breeding under favourable conditions, and may by the fineness of early spring weather and good surroundings be induced to commence doing so, the chances in this variable climate are against their increasing in numbers; and the fact points out how undesirable it is to feed weak stocks to stimulate the breeding propensity, until a continuance of favourable conditions is in a sense assured.—C. N. Abbott.

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

A meeting of the special committee, appointed to consider the best means of organizing village bee clubs, was held at Cox's Hotel, Jermyn Street, on Wednesday, April 25th. Present, Rev. G. Raynor (in the chair), J. Garratt, D. Stewart, and the Rev. H. R. Peel, Hon. Sec. Letters were read from the Rev. F. J. Jenyns and Mr. T. W. Cowan regretting their inability to be present, the latter on account of the serious illness of Mrs. Cowan. Mr. Garratt reported that he had called a meeting of the committee of the Kent County Association to consider the proposal, and after full and careful consideration the committee were unanimous in an opinion, 'That the objects which this scheme aimed to carry out could be much better, and more efficiently, carried out by the County Associations themselves.' The Rev. E. Cadogan, one of the Hon. Secretaries of the Northamptonshire Association (who attended the meeting by invitation), stated that in his parish the cottagers had their regular meetings for discussion of subjects connected with bee-keeping; formerly they had met at the vicarage, but as the numbers grew, it was found more suitable to use the school-room: he was of an opinion that the work could be done more efficiently by the County Associations.

The Rev. H. R. Peel supported the views of Mr. Garratt and Mr. Cadogan, and in order that the scheme should have every assistance, he had drawn up a number of suggestions which he considered would tend to assist in the better organization of County Associations, and to further the work which the Village Bee Clubs proposed to carry out and begged to submit them for the consideration of the committee. After some discussion it was resolved, 'That each member of the Village Bee Club Committee be furnished with a copy of these suggestions, and return them to Mr. Cowan with their comments, Mr. Cowan then to prepare a report to be submitted at a future meeting.'

The Quarterly Conference with county representatives was held at 105 Jermyn Street, on Wednesday, 25th inst. Present, Rev. G. Raynor (in the chair), Rev. E. Bartrum, H. Jonas, J. M. Hooker W. O'B. Glennie (Treasurer), Rev. H. R. Peel (Hon. Sec.), J. Garratt and G. Allen (Kent), W. H. Dunman (Dorset), Rev. C. R. Sowell (Cornwall), Rev. J. Blake Humfrey (Norfolk), Rev. W. E. Burkitt (Wilts), Rev. E. Cadogan (Northants).

The minutes of the last committee meeting having been read, confirmed, and signed, it was resolved that a uniform charge of 6*d.* be made for admission to the Exhibition at Bridgwater. The secretary was instructed to make the necessary arrangements for the Bridgwater Show. It was resolved that Mr. T. W. Cowan, Rev. P. M. Filleul, and Mr. C. Tite, be requested to act as judges at this Show.

The Assistant Secretary reported that the memorial to the railway companies would be considered at a meeting of railway superintendents on the 26th inst.

It was announced that advertisements had been inserted in the daily papers for suitable premises suitable for a bee-keepers' club, the holding of meetings, the library, honey-market depôt, &c. The proposal was considered at length. Mr. Stewart, Mr. Hooker, Mr. Jonas, and the Honorary Secretary spoke in favour of the proposal. The Rev. E. Bartrum opposed. Time did not permit of the matter being fully considered, and no resolution was come to.

The Hon. Secretary submitted a series of suggestions for the improvement of the organization of County Associations, and reported that the Buckinghamshire Association had been founded upon these regulations, which had been formed from experience gained in the work of the Hertfordshire Association, and from various suggestions given in the several County Associations' reports. It was resolved that the same be printed in the *Bee Journal*.

Mr. Dunman reported that the hints given by the Hon. Secretary at their General Meeting in regard to employing an expert and dividing the county into districts, had been acted upon with most satisfactory results, upwards of seventy new members having joined the Association.

The next Committee Meeting was fixed for May 16th.

A Conversazione was held at six o'clock. In anticipation of the presentation of the Testimonial to Mr. Abbott, a very large number of members and friends attended. The testimonial took the form of a handsome black marble dining-room clock, designed after the style of the temple at the foot of the Acropolis at Athens, with bronze bas-relief figures representing priests sacrificing to Minerva. Affixed to it was an inscription-plate stating that the clock had been presented to Mr. Abbott from a few well-wishers and friends as a token of their appreciation of the services rendered to bee-keeping by his establishment, and editorship for upwards of nine years, of the *British Bee Journal*. Also a framed Illuminated Address on vellum, with the names of the subscribers to the Fund arranged in alphabetical order.

The Rev. C. R. Sowell, vicar of St. Austell, Cornwall, and representative of the Cornish Bee-keepers' Association, was voted to the chair. In opening the proceedings, he said that he felt it to be a great compliment

paid to the County Association with which he was connected in requesting him to preside on the present occasion. He had been informed that the first work of the meeting was to recognise in a substantial way the great services rendered to British bee-keeping by a very well-known member of the Association, who had served a long apprenticeship in the cause, which he had earnestly and devotedly endeavoured to advance for a very long period, Mr. Charles Nash Abbott. The mere mention of Mr. Abbott's name was sufficient to call forth applause. He would not detain them further, but would ask Mr. Peel to proceed with the very pleasant duty he had undertaken to perform.

The Rev. H. R. Peel said he regretted the absence of Mr. Cowan, which was unavoidable, owing to the serious illness of Mrs. Cowan. Mr. Cowan had taken great interest in the presentation, and would have been there that day but for the unfortunate circumstance he had mentioned. On behalf of the subscribers to the presentation he had to ask Mr. Abbott's acceptance of a dining-room clock with the accompanying address which he held in his hand. A number of that gentleman's friends desired to recognise the great services he had performed in promotion of the principles of the Association by starting the the *British Bee-keepers' Journal*, and their wishes had taken effect in the humble offering now exhibited on the table. He had been informed that this clock was called the 'Acropolis' clock, and the Acropolis was not very far distant from Mount Hymettus. Milton in his *Paradise Regained* says,

> 'There flowery hill Hymettus, with the sound
> Of bees' industrious murmur, oft invites
> To studious musing;'

and he (the speaker) had been led to some musings in connexion with the classic temple just referred to. Eighteen centuries ago there stood under the shadow of the Acropolis a man striving to convert a city to the Christian faith. This man had to contend against a great mass of ignorance and superstition; and it had struck him that Mr. Abbott stood out to some extent as a similar example of a man working hard single-handed to enlighten the ignorant and combat superstition. Their zealous friend had undertaken to teach the whole British nation on the subject of bee-keeping when he started the *Journal*. At the commencement of this task he was alone, as St. Paul had been. He had had a number of difficulties to contend against, mostly those of apathy and want of sympathy. Even after 6000 copies of the *Journal* had been sown broadcast over the length and breadth of England, and 5000 circulars distributed, only 200 subscribers came forward to assist. This result was quite enough to make any one despair. However, Mr. Abbott did not yield to the adverse wave but fought on unflinchingly, and after a considerable time had the satisfaction of seeing his endeavours rewarded by the formation of the British Bee-keepers' Association, and the establishment of metropolitan shows, which have been held, with one exception (in 1877), in London annually for several years past. The offering made to Mr. Abbott to-day is a very modest one. If all the gentlemen present had known what an up-hill task he had so successfully undertaken, no doubt a much larger number of subscribers would have been forthcoming, and a more valuable present could have been bestowed. However, he (the speaker) was quite sure Mr. Abbott would esteem the kindly feelings of all those who had participated in the presentation. He had been led to think that a clock was a most appropriate gift. It served to remind one of the rapidity with which time passes, of the brief span of life allotted to the human race. The time would come to everybody when the sands of their hour-glass would be running out. At the last hour if everybody should be able to say that they had devoted themselves to a good work as fearlessly and earnestly as Mr. Abbott had done, they would have the best support in their last hours, namely, the solace of an approving conscience.

Mr. Peel then read the Address and the names of the subscribers thereto, and formally presented the Clock and Address to Mr. Abbott.

Mr. Abbott said that he felt somewhat embarrassed by the exceedingly kind and flattering remarks of Mr. Peel. All that gentleman had said of his early experiences in regard to the cause they all felt so much interested in came back on his mind with double force. There were difficulties, but having put his hand to the work he determined to overcome them, feeling sure that in a good cause, with truth for his guide and honesty for his intention, he was sure of at length winning the support of the better class of bee-keepers in the country. In selecting a clock for him they could not have chosen anything more suitable for a presentation. He looked upon a clock as he looked upon an honest man, because if it be a good clock it always shows a face that one is pleased to look on, that is, a face that always tells the truth. This beautiful time-piece would be his future companion, and whenever he looked on it his memory would recall the excellent friends that he had made by a consistent course of conduct which he had always maintained in the *Bee Journal*. There was not one single motion in the clock but what was measured, from the second to the minute, from the minute to the hour, and from the hour to the day; and there was not in the *Bee Journal* a single mark that flowed from his fingers, from the letter to the word, and the word to the sentence, but was also measured, and measured by himself in the hope that it would be understood and appreciated as being strictly true, and written for the honest purpose of benefiting his fellow-creatures. The clock, however, sometimes gets wrong owing to its machinery being out of joint: so also he feared there must have occasionally been some little things out of joint in his conduct of the *Bee Journal*, of which no one could be more sorry than himself. He was proud to see so many friends around to welcome him on the present occasion, because he felt assured of their sympathy and acquiescence in the honour which had been done him that day. He could but express his heartfelt gratitude for their extreme kindness, which would always live in his memory.

The Rev. H. R. Peel then proceeded to read his paper, 'Who *is* the *bonâ fide* Cottager?'

This will be given *in extenso* in our next issue.

On the first day of the Association Show at Knightsbridge, a lecture will be delivered on the 'Adulteration of Honey and Wax,' by Otto Hehner, Esq., F.C.S., F.I.C.

The following additional sums have been received for the Abbott Testimonial Fund:—R. W. Lloyd, 5*s.*; E. M. Haigh, 5*s.*; C. T. Caldecott, 5*s.*; C. W. Smith, 10*s.* 6*d.*; G. Brett, 5*s.*; Rev. E. Bartrum, 10*s.*

SUGGESTIONS FOR THE IMPROVEMENT OF THE ORGANIZATION OF COUNTY BEE-KEEPERS' ASSOCIATIONS.

1. It is suggested that one Association should be formed for each County, and that two Counties should never unite to form one Association.

2. That there should be but one head of an Association, and his or her title should be that of President. He should be distinctly informed by the secretary of the County Association that he or she is an ex-officio Vice-President of the British Bee-keepers' Association.

3. That there should be only *one* secretary of each County Association.

4. That the secretary or committee of the County Association should divide the county into districts corre-

sponding either with the Unions formed for Poor Law purposes, or with the Rural Deaneries in the County.

5. That a district secretary should be placed at the head of each such district.

6. That the district secretary should in the first instance select, and the members in each parish should afterwards elect annually at the first meeting in the year a representative of each parish in his district, and should hold monthly meetings on the last ——day (to be fixed) of each month in any place within the district that may be found most convenient.

7. That at these meetings the parish representatives should present reports of the bee-keepers in their parishes to the district secretary, should announce the names of new members gained for the County Association, and receive receipts for their subscriptions from him. Such subscriptions to be forwarded by the district secretary to the county secretary in chief, who should place the names of the new subscribers on the list of members of the County Association, and forward their members' tickets by letter addressed to them personally. Subjects connected with bee-keeping might be discussed at these meetings when the business of the Association has been transacted.

8. That the circulation of the *Bee Journal* in the different districts should be entrusted to the district secretary.

9. That each parish representative should assemble the cottage bee-keepers and any others in his parish on the ——day evening of each week, and instruct them in the art of bee-keeping by reading to them extracts from the *Bee Journal*, or any standard work upon bee-keeping, inviting discussion thereupon.

10. That each district secretary should be an ex-officio member of the county committee.

11. That the county committee should meet quarterly in the most central town of the county, on the *first* ——day of the month of January, April, July, and October of each year.

12. That the general meeting of the County Association should be held in the middle of the month of January of each year.

13. An extractor should be provided by the county committee for each district, and be placed under the care of the district secretary.

14. One or more experts *resident in the county* should be employed by each County Association at the rate of 5*s.* per day and travelling expenses when on their tour of visitation to the hives of members; and when employed at other times by members of the Association privately, at the rate of 7*s.* 6*d.* per day with expenses; 10*s.* 6*d.* per day to be paid by non-members.

15. That the travelling expenses of one county representative be defrayed by the County Association which he represents to enable him to attend the quarterly conferences.

COUNTY ASSOCIATIONS.

COUNTY ASSOCIATION FOR CHESHIRE.

At a meeeting of the Altrincham and Bowdon District Bee-keepers' Association, held at 8 o'clock on April 9th, in the 'The British Workman,' Geo. Davies in the chair, it was resolved unanimously, That the District appellation be laid aside, and that the title of 'Cheshire County Bee-keepers' Association' be assumed; That we affiliate with the British Bee-keepers' Association; That the Right Hon. Lord Egerton, Tatton Park, be elected President of the Association.—T. M. Brooke, *Hon. Sec.*

WARWICKSHIRE BEE-KEEPERS' ASSOCIATION.

The annual general meeting of this Association was held yesterday afternoon at the Grand Hotel, Colmore Row, when there was a large attendance of ladies and gentlemen. The Marquis of Hertford (one of the vice-presidents) occupied the chair in the unavoidable absence of the President (Lord Leigh).

The committee reported that the work of the Association continued to be carried on with great success. The list of members had steadily increased. The year commenced with 158 members and ended with 247, an increase of 89. The Society's bee tent had, during the year, visited Sutton Coldfield, Halesowen, Erdington, Eastnor Castle, Bilston, Bedworth, Warwick, and Yardley Wood. Lectures were given by Mr. J. Duncan Stewart, of London, in the spring, and were attended by large audiences. The county show was held at Warwick in conjunction with the Warwickshire Agricultural Society Show, when, considering the unfavourable state of the weather, there was a good show of honey in the cottagers' class. The committee had arranged for a tour by the Society's expert during the coming season to visit any members gratis who might desire his assistance. Negotiations had been opened with a view to forming a depôt in Birmingham for the sale of members' honey. The balance-sheet showed the following results:—Members' subscriptions, 74*l.* 4*s.*; receipts from the bee tent at village and other shows, 34*l.* 9*s.* 7*d.*; stock bee tent, 28*l.*; with other amounts making a total of 146*l.* 10*s.* 4*d.*

The Chairman moved the adoption of the report, which was seconded by Mr. E. Pearson.

On the motion of the Chairman, seconded by the Rev. T. N. Mynors, Mr. J. Noble Bower was unanimously re-elected hon. secretary.

After the election of the other officers, the Chairman announced that a ballot would be taken for three bee-hives. The result of the ballot was that the following were elected:—Mr. James A. Hancox, Henley-in-Arden; Mr. C. G. Harrison, Halesowen; Mr. E. Wright, Old Swinford.

The Rev. Canon Evans then proposed a cordial vote of thanks to the Marquis of Hertford for presiding.

The noble Chairman, in acknowledging the vote, said that he would not be at all surprised if at some future time the Government did not take up the question, the same as in Germany and other countries. In Germany they made this a special subject. In the various schools the scholars had lectures, and got certificates for bee-keeping, just as they did in other branches of knowledge. The State authorised instruction in bee-culture, by means of examination, before the scholars could attain a certificate. He only hoped they would see this some day in our own country; but in the meantime let them all work together and do their best to promote the science of bee-keeping.

BERKSHIRE BEE-KEEPERS' ASSOCIATION.

A Committee Meeting was held at Victoria Street, Windsor, at 6.30 p.m., on Saturday, 7th April, when the following resolutions were carried:—'That, as the Berkshire Bee-keepers' Association is now being reconstituted, her Royal Highness the Princess Christian be from henceforth designated the President of the Association.' 'That the following gentlemen be designated Vice-Presidents of the Association:—R. Richardson Gardner, Esq., M.P., Victor Bates Van de Weyer, Esq., Sir Roger Palmer, Bart., Sir Gilbert A. Clayton East, Bart., Rev. C. C. James, with the addition of the following:—The Right Hon. the Earl of Craven (Lord Lieutenant of Berks), the High Sheriff of Berks (Major Thoyts), the Right Hon. Earl of Radnor (Lord Lieutenant of Wiltshire), G. Palmer, Esq., M.P., F. T. Barry, Esq.' 'That

the Annual County Show be suspended for the present year, and that prizes for honey be offered at horticultural and other shows should donations be received towards the prize fund.' 'That a charge of 21*s.* be made to horticultural and other societies for the attendance of the Bee-tent, all receipts and liabilities being taken by the Association.' 'That the county be divided into districts (identical with the unions under the Poor Law), and that Honorary District Secretaries be appointed for each district.' 'That the next Quarterly Committee Meeting be held at 3 p.m. on the first Tuesdays in July and October.'

Arrangements have since been made with Mr. A. D. Woodley, whose address is 28 Dorrington Road, Reading, to become the expert of the Association, and who will be glad to make appointments for the attendance of the bee tent at any horticultural or other show in the county.

Honorary district secretaries for the various districts are greatly required. Gentlemen willing to act are requested to communicate with the Honorary Secretary, Geo. P. Cartland, Victoria Street, Windsor.

BUCKINGHAMSHIRE BEE-KEEPERS' ASSOCIATION.

This Association is making rapid progress under the secretariat of Mr. J. B. Graves, of Stony Stratford, and the presidency of the Duke of Buckingham and Chandos. Lord Cottesloe, Lord Carington, Sir Nathaniel Rothschild, Sir Samuel Wilson, Sir Harry Verney, the Archdeacon of Buckingham, Cyril Flower, Esq., M.P., and W. G. E. Russell, Esq., M.P., have joined the Association and become vice-presidents. District committees are being formed for each union of parishes throughout the county, with district secretaries at their head, who will be ex-officio members of the provisional county committee. This committee will meet quarterly at Aylesbury, as being the most central point of the county, in the January, April, July, and October of each year. The district committees will meet monthly. The representatives of parishes upon the district committee will will form village bee clubs (upon the model of the one instituted with such success by the Rev. E. Cadogan, at Wicken) whose members will meet weekly for the discussion of topics connected with bee-keeping, with a view to mutual improvement in the art. Mr. R. H. Stonhill, of Stewkley, near Leighton Buzzard, is acting as expert for North Bucks, and Mr. William Martin, of Downey, near High Wycombe, as expert for South Bucks. The Association already numbers about one hundred and twenty members. A general meeting of the Association will be held at Aylesbury in the early part of 1884.

HAMPSHIRE BEE-KEEPERS' ASSOCIATION.

A Committee Meeting of this Association was held at Southampton, April 9th. President: Rev. Dr. Wray (in the chair), Rev. W. E. Medlicott, Col. Farquhar, Henry Daniell, Capt. Martin, and E. H. Bellairs (Hon. Sec.). After the former minutes were read and confirmed, an offer from the Royal Southampton Horticultural Society was accepted and a Prize Schedule agreed upon, whereby the sum of 25*l.* is to be offered in prizes which it is hoped will call forth a first-rate exhibition. This show, which is one of the most important in the south of England, was visited last year by 23,000 persons interested in Horticulture; and as one of the show days falls on Bank Holiday (Aug. 6th), manufacturing exhibitors are likely to be well represented.

DEVONSHIRE BEE-KEEPERS' ASSOCIATION.

A Lecture on Bees and Bee-Keeping was delivered by one of the Hon. Secs., Wm. N. Griffin, at the Lewsden School Room, near Ashburton, on the 18th of April, J. Stone, Esq. in the chair. Much interest was shown, and at the close the Vicar, the Rev. F. Gilbert White, remarked that all should support the humane system of bee-keeping, and he trusted that after the lecturer's advice the cottagers would give up the cruel and wasteful practice of burning their bees.

At a Council Meeting held on the 19th April, it was decided that, in order to assist and encourage the cottagers, whenever there are six subscribers in the cottager class in a district they shall have a copy of the *B. B. J.* to circulate amongst themselves, and at the end of the season it shall be drawn for by them. Further, that the Association will provide a good bar-frame hive at a cost not exceeding 1*l.*, to be drawn for at the Annual Meeting by all the cottagers belonging to the society who are bee-keepers.

WAX AND HONEY.

ENGLISH HONEY:—
Comb in Sections. None on offer.
Extracted in bulk. Scarce, price from 10*d.* to 1*s.*
ENGLISH WAX:—1*s.* 4*d.* to 1*s.* 8*d.*

LECTURE ON BEES.—A meeting was held at the North Street Schoolroom, Wincanton, Somerset, on Wednesday evening, March 7th, under the presidency of the vicar, to hear a lecture on 'Bees and Bee-keeping,' by Mr. J. Hinton, of Warminster. The details of bee-keeping were gone into and illustrated by a Woodbury hive and the various accessories thereto. The object of the lecture was two-fold—to diffuse information and to pave the way for a county association of bee-keepers.

LECTURE ON BEES.—A lecture was given at the Oldhill Institute on Monday evening March 12, by Mr. George St. John, on the subject of bees and bee-keeping. W. Bassano, Esq. J.P. presided, and there was a large and appreciative audience.

Mr. St. John, in an appropriate introduction, quoted statistics to show the importance of bee-keeping as a commercial enterprise. He showed that thousands of pounds were annually paid to the foreigner for honey and wax, and contended that there was nothing to prevent this money going into the pockets of the working classes of this country, as there was nothing about bee-keeping which a man of ordinary patience and perseverance could not soon master. Mr. St. John then described the physiology and habits of the queen worker, and drone, and gradually unfolded the mysteries of the hive, particularly with regard to the government of the bees, sexes of eggs, queen-raising, &c. Then followed an account of the plants and flowers famous for their honey-yielding properties. The lecturer then explained the proper management of bees, the construction and use of the extractor, guide-comb, &c., and showed how to obtain the largest amount of profit. A very interesting part of the lecture were the directions given by Mr. St. John for controlling bees, in which he showed that it was comparatively easy for a man to handle his bees without much fear of exciting their anger. In connexion with this part of the subject he condemned the barbarous custom of killing the bees in the autumn. He also dealt very fully with the subject of swarming, both natural and artificial. The questions of bar-frame *versus* straw skep occupied some time, the lecturer showing the great advantages to be derived from using the former. There was an exhibition of hives, supers, &c., of the most approved patterns, some of which were carefully explained by the lecturer. A few remarks on the superstitions in connexion with bees in various countries brought the lecture to a close.

'How do you pronounce s-t-i-n-g-y?' Prof. Stearns asked the young gentleman nearest the foot of the class. And the smart boy stood up and said it depended a great deal whether the word applied to a man or a bee.

Correspondence.

*** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

All Correspondence must bear the name and address of the writer, not necessarily for publication, but as a guarantee of good faith.

BEE-KEEPING EXPERIENCES; OR THE AUTO-BIOGRAPHY OF A JUDGE.

I have often thought my bee-keeping experiences might instruct and warn, and, were it not for my extreme modesty, I should add encourage, the rising generation of advancing apiarians, for I have actually risen from the very lowest depths of apiarian knowledge, or rather ignorance, to the dazzling height of being a *Judge* at a county show. I have appeared one whole afternoon with a badge on my manly breast bearing the proud legend in black letters on a white ground, 'Judge.' I have hobnobbed on terms of apparent equality with the leading stars of our noble profession—men whose names are household words. Nay, further, I have with great judgment, for a few happy moments, discussed which is the most suitable hive for a busy man with a Bartrum; the advantages of bee-houses with a Raynor: the abomination of skeps with a Lemare, have grasped the hand of a Cowan; have exchanged experiences with a Sissons; have, in those happy days ere I wore the blue ribbon, pledged at lunch a Hooker; have even once been pitched into by an Abbott in the columns of the *Journal* upon the subject of an unrighteous decision; and have an original letter in my possession having reference to a delayed subscription, signed 'Herbert R. Peel,'—of which I am very proud.

Yet there was a time when I knew not a drone from a blue-bottle, or a Ligurian from a wasp. Whether my autobiography is destined to grace the columns of the *Bee Journal* or the editorial waste-paper basket I know not. Your next issue will decide. Be that as it may, I was, like other well-known bee-keepers, born. It was in the year ——, but as I did not commence bee-keeping until some years subsequently I shall pass over the intervening period and proceed to state how my apiarian experiences were first brought about.

It was in this wise. I lived in the country, having previously resided in London, or rather an outlying suburb. One afternoon, while sitting in the garden of my cottage, then covered with the graceful, drooping blossoms of a gigantic wistaria, a bee came buzzing round my head, exhibiting an alarming tendency to settle upon the most prominent feature of my face. It was no time for hesitation. One swift and unerring blow with Dean Hook's *Lives of the Archbishops of Canterbury*, and the daring invader was repulsed, doubtless destroyed by the weight of my heavy ordnance. The danger having passed away, there followed cool and calm reflection. I had killed, so I feared, a bee, and possibly without cause. It may have had no hostile intent; it was probably the natural sweetness of my nature which attracted the intelligent insect, and I in my panic had slain it, and I thought regretfully that—

> 'He prayeth best who loveth best
> All things both great and small.'

But after all it was not an albatross, only a bee, probably from the cottage hard by. Then suddenly there flashed upon me the happy, most 'happy thought,' Why not keep bees yourself? why not gather, as exhorted in a well-known advertisement, 'honey from your flowers?' and, still more delightful thought, from your neighbours' flowers; and 'if not, why not?'

The idea was so pleasing that I resolved at once to proceed to old Mother Redding and enter into negotiations for the purchase of a hive and its contents. I arose from my chair, and seizing it to take it indoors, when—oh! what is that tingling sensation in the hand? and what is that excited object twisting round and round? It is the bee which the *Archbishops* had evidently missed. This was my first, but not my last sting.—JOHN PEEL.

(*To be continued in our next—perhaps.*)

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom for the month of March 1883 was 1535*l*.

[From a private return sent by the Principal of the Statistical Office to E. H. BELLAIRS, Esq., Hon. Sec. Herts B.K.A.]

'DISTRICT ADVISERS.'

It may encourage secretaries of County Associations to make efforts in the same direction to know that although it is only a very short time since my proposal was made at the meeting of the Herts Association with reference to 'stationary experts,' or rather 'district advisers,' the secretary has already found sixteen or eighteen amateurs of experience who have volunteered to take districts, and to help to the best of their ability their poorer and less well-informed neighbours. I think this promises well as, at least, one practical step towards the advancement of bee-keeping amongst cottagers. Allow me, however, to add that while I advocate such a system I by no means consider it in any way as a substitute for the regular expert and his visits. These will be as much as ever needed. I look upon the district advisers simply as auxiliaries.—F. G. JENYNS, *Knebworth Vicarage, April 9th, 1883.*

FEN HONEY.

A 'Much-puzzled Fenman' raises a very puzzling and important subject in last *Journal*, page 275, and one which ought to be solved if possible. Although I cannot from reading his letter say the reason his honey is so dark and strong-scented, I have no doubt it is owing to the kind of flowers from which it is gathered.

At present the 'Market,' as so-called experts say, wants honey of delicate flavour [nearly none] and of good colour [white], and white clover honey is taken as a standard; I think this is not as it should be, it opens the door for adulteration with a vengeance; for all that is needed to make 'Marketable Honey' is to take a little that is strong-flavoured and mix it with sugar syrup or glucose; I will venture to say, that fully one half sold in this country is so made, bearing chiefly American labels. I have tasted samples in which I could not recognise the slightest trace of pure honey; some authorities say, 'pure honey will granulate,' so will sugar syrup.

I think if the various County Associations would 'grade' the different kinds of members' honey together, and label it with distinctive labels—which ought to be registered as trade-marks—and offer it to the 'Drug' trade, the public would soon learn to appreciate it, especially that portion whose palates it particularly suited. At first a less price, perhaps, would have to be accepted; but after a while, when it had become known, I venture to think it would command the highest price.

Why is honey so different in colour and flavour? I am often asked this question; one says, It is on account of the pollen it contains; whether the colour is or is not,

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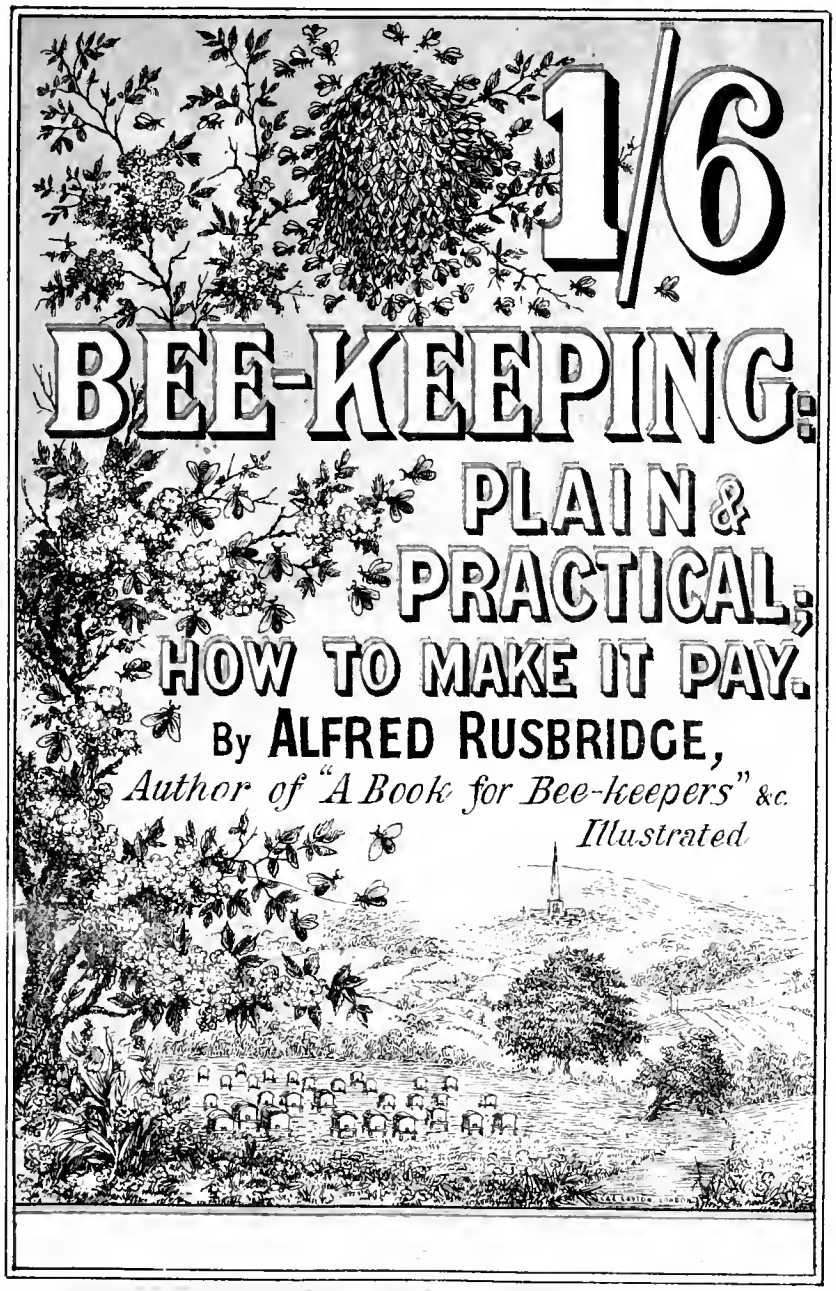

Secretaries to Bee Associations and Hive Makers supplied on the same terms, at per doz., as the trade. All communications to be addressed to the Publisher, Ave Maria Lane.

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Needless interference to be avoided during the Winter Months—Author's method of Wintering—Danger in too closely Packing Bees in Winter—Cold not injurious to Bees when in a healthy condition—January 18th, 1881, Hives "snowed up"—Three weeks later; Bees none the worse—A trying ordeal—Débris at entrance—Securing Roofs from being blown away—Tom Tits very destructive to Bees—Their method of capturing Bees—How to deal with them—Prevention better than cure—Dysentery, how caused, how to cure—Prevention of Dampness in Hives—Severe attacks of Dysentery; usual result, foul-brood—Very contagious—Cure for ditto.

CHAPTER XVII.

RUSTIC BEE-KEEPING.

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CHAPTER XVIII.

RUSTIC SUPERSTITION.

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SUPPLEMENTARY CHAPTER.—(*A Sequel.*)

Instance of rustic mismanagement: not an uncommon case—Sam Goodheeve's opinion of "new-fangled notions"—Narrates his experience with bar-frame hives at the Squire's—His highly original method of stocking them with Bees (*a fact*)—Helps the Squire on coming home to "set things straight"—Smoker wouldn't burn—Result, "didn't we catch it"—The Squire relinquishes the pursuit—Paying out the Parson—Success of the hives at the Rectory.

MEAD.

ILLUSTRATIONS.

FIG.

1. Bees—Queen, Drone and Worker
2. Queen-cell, with Queen-cage over it on Comb
3. Sussex Straw Cottage Hive
4. Frame, enclosing Sections
5. Queen and Drone Excluder Zinc
6. Natural size of Zinc
7. Sussex Bar-frame Hive (back view)
8. Front view of same with Crown-board removed
9. Bases of Cells in Comb
11. Fumigator in use
12. Bee Veil
13. Sussex Sectional Super (2lb. Sections)
14. All-in-one-piece Section in the flat
15. Ditto Folded
16. Group of three 2lb. Sections, showing the Comb
17. Sussex Sectional Super (1lb. Sections)
18. Aston's Bee-trap
19. Ditto fixed to Tray
20. Sussex Bar-frame Super
21. Honey Extractor
22. Cage of Extractor
23. "Little Wonder" Extractor
24. Marketing Crate for Sections
25. Bottle-and-Block Feeder
26. Raynor Queen-cage
27. Simple Queen-cage

I am not quite sure, though I think it is not attributable to pollen, but I am sure the flavour is not. I have never been able to find two kinds of flowers yield honey of one flavour, and even in different years and districts the honey from one kind of flower, say white clover, varies in colour and flavour. In my opinion the flavour is caused by an essential oil. What bee-keeper has not noticed the strong scent from his hives when the bees have been working on black currants? the honey of which I think has the strongest flavour.

In favourable seasons I obtain large quantities of sycamore honey, which is of a dark greenish colour and very strong in flavour, which some people cannot tolerate, yet I and many others prefer it to any.

It is generally thought the new combs bees build are 'white,' so they are when using sugar or clover honey; but when using sycamore, the colour is of a deep yellow.

There is another honey which has been a puzzle to many during the past season, viz., blackberry; which is a very black inky colour; in ordinary seasons we get none of it, as the bees use it to feed the enormous amount of brood they generally have at the time—just after the clover harvest—which they use in preference to that which is sealed; the last season the finest weather we had was just when the blackberries were in full bloom and hives full of bees. Where the bees had a good pasture of them, hives were filled with this so-called 'black honey,' whilst in another apiary, say two miles away, where none or only a few were near, it was not found. Undoubtedly this honey does not 'look well,' but I prefer the taste of it to clover honey, and I dare say many others would, if they could only believe it was pure. The best-looking, showy, and least objectionable honey is certainly white clover.

I don't see why the different kinds should not be known and appreciated by the people they suit, just the same as the different cheeses? But the public taste is hard to deal with, prejudice and fancy being the ruling elements.

In conclusion, I may remark I can't see why County Associations should not receive members' honey in bulk, taste, and grade it by an expert, and put it up in marketable form? It is all very well to tell members to do so, but cottagers are not professional bottle-washers and potters, neither have they the means to do so properly, or buy jars in anything like quantities to make the 'carriage' a small per centum factor. Whereas, if the work was done at a central depôt, jars could be got in quantity at the cheapest rate bearing the Association's mark, the public would accept the guarantee of the honey being pure, dealers buying would inquire at the central offices instead of the hap-hazard way as at present, and the County Associations would become an absolute necessity to the bee-keeper. All these benefits might be obtained by making a small charge of so much per pound or per cent on boney sold or received.—JOHN HEWITT, *Sheffield, April* 11, 1883.

EARLY DATE OF THE BRITISH BEE-KEEPERS' ASSOCIATION SHOW.

I suppose the decision of Committee is final as to date of holding the annual show at Knightsbridge in the first week of July; if not, allow me to say that I think it is being held too early to ensure a good show of honey; and I opine that is what the Association wants to see there. I hear from our local secretary at Reading that Mr. Blow, the expert, who has been round among the members of the Berkshire Association, says he did not find half-a-dozen good stocks of bees among the lot; and if the experts of other counties find the same state of affairs in their respective counties, we must conclude that bees are very backward this spring, and consequently swarming will be later this year, and supers will and must be later before they are filled. Of course there are a few favoured districts where the honey harvest is earlier, and those that depend on the fruit-trees and seed districts will be ready; but those bee-keepers who have to wait till the white clover, sainfoin, and limes are out, will not be able to put in an appearance with any bulk before the end of July. And, again, if the show is held at Knightsbridge as a bee and honey-show, and has to stand on its own merits and attraction, it ought to be the best it is possible to produce from the whole of the country. I can quite understand why it is earlier,—to catch the nobility and gentry before the season is over; but if a fortnight later would catch them ere they dispersed to the rippling waves and green pastures, I think we should stand a much better chance of proving to them that English bees really bring honey to the hive.—W. WOODLEY, *Newbury, April 9th.*

[The writer seems to be unaware that the Show of the Royal Agricultural Society, at which the British Bee-keepers' Association have a department, will take place in the week commencing July 16th, and that after Monday, July 23rd, the nobility and gentry begin to leave London.]

THE GIOTTO FRAME.

A good deal has been written about the above frame during the past year, and, taking the opinions with regard to it as a whole, it is not favourable to the use of the frame.

It was so strenuously advocated last spring, that I determined to try it side by side with the plain frame on zinc runners; and to give it a fair trial put six stocks on Giotto frames.

The advantages of a hive, and its adaptability to the requirements of the bees, can never be properly known till it has been worked for a season, and has stood the winter, and been put to the severe test of the early spring months, as it is then that any superior merits a hive may possess for the welfare of its occupants will be known; therefore, though often tempted to make a few remarks before, I refrained from doing so till now.

My opinion now is that the system has no practical advantages in an apiary. The only benefit I can see to bees being on these frames is, that they are less liable to suffer injury on a journey. The disadvantages I consider many. 1st. Loss of time; for I defy any one to perform similar operations in the same space of time, as with a hive fitted with common frames. I don't think myself particularly unhandy in handling these frames, for so great a manipulator as A. I. Root objects to them on the same ground. 2nd. If the combs have to be interchanged in any way, they are sure not to fit, in this they possess the same disadvantage as wide-shouldered frames. Combs as they become thickened have never an even surface, and when the position of a frame is altered, a protrusion on one comb generally happens to come opposite a like convexity on another, necessitating a never-ending amount of trouble. 3rd. They are unhandy when extracting, and there is great danger of the comb being broken from the frame in the extractor.

These are objections to the Giotto frame to the practical bee-keeper; a young hand to use them would be about the surest way to give him a disgust to bee-keeping for ever.

That the employment of these frames furthers in any way early breeding, or is conducive to the welfare of the bees, by being more heat-retaining, is altogether a theoretical assertion, as my stocks would testify; and I gave a very fair trial, as I had about an equal number of similar stocks on both kinds of frames, of the same inside measurements, in hives with walls of the same thickness, and covered in exactly the same way, yet my stocks on the common frames are the strongest and furthest advanced. Therefore, when the Giotto frame fails in the one advantage it is supposed to possess over

the common frame, I should be very reluctant to tolerate its many inconveniences.

In hives properly constructed there is no loss of heat from the brood-nest, at least no more than with the Giotto frame; but the generality of hives for the common frame are anything but properly constructed. There may be a slightly greater distribution of heat over the area of the hive; but as no careful bee-keeper would have this larger than would be occupied by the bees, I consider it an advantage rather than otherwise.—FRANCIS H. JONES, *Mullinabro', Waterford.*

SINGLE AND DOUBLE-WALLED HIVES.

I believe the double walls came into use when our bees used to suffer from dysentery caused by damp. This was found out was caused by the crown-board, and was obviated by using a quilt. Since the introduction of the quilt double walls have still been used, but after trying experiments with both double and single walls during both very hard and very mild winters, I have come to the conclusion that bees winter just as well, if not better, in single walls, and for many reasons the single walls are preferable. I think bees swarm sooner from them, because the sun strikes through them hotter, and I think bees collect more honey in them, for the following reasons. In summer time the double walls retain the heat nearly all night, and this tempts the queen to extend her brood-nest, and, as is well known, when bees are breeding too fast they are inclined to swarm, and consequently neglect supers. All I do to my single-walled hives for wintering is to contract them in the autumn from ten Woodbury combs to six or seven. I live near the moors in Yorkshire, where my hives stand out in the wildest weather, and I think they will compare favourably with anyone else's in the spring. I keep twelve or fourteen hives every winter, and never have more than one weak stock in the spring. If the swarms are not very early and large I always put two together, and again double them in the autumn. By this means I always winter about the same number. My bees always pay, even in bad summers, but we never have a large harvest in Yorkshire.

It is of the greatest moment if bees will winter well in single-walled hives. I forgot to say that I confine my bees to the middle six or seven combs, with two dummies, so that practically my hives are double-walled on two sides.—ARTHUR H. J. WOOD, *Galphay, Ripon.*

THE REV. W. E. BURKITT'S TOUR IN SOMERSET AND DORSET.

The zealous and indefatigable hon. sec. of the Wilts Association recently placed his services at the disposal of his neighbours in Somerset and Dorset, for the purpose of helping to start an Association in the first named county and with a view to keep up the interest and increase the number of members in the latter. The tour has been most successful; and the bee-keepers of both counties are greatly indebted to Mr. Burkitt for the help he has rendered. The places visited were Sherborne, Blandford, Gillingham, Wimborne, and Wareham in Dorset, Ilminster, Yeovil, Street, Bruton, and Wells in Somerset. The result has been the addition of a considerable number of new members in both counties, the quickening of the zeal of those who keep bees, and the awakening of a keen interest amongst those who do not. Mr. Burkitt gave an excellent and practical lecture on 'Humane and Profitable Bee-keeping, at each place, explaining the various modes of procedure and the apparatus used and comparing the grope-in-the-dark method with the bar-frame system in a manner that could not fail to commend the latter to every thinking person. The ready sale of '*Modern Bee-keeping*,' the orders given for improved hives and apparatus, and the numerous questions asked after the lecture gave ample evidence of the good results of the lecture, and leave a reasonable hope of still better things to come. At Wells the Bishop of the diocese took the chair, and his lordship has consented to act as president for the county of Somerset.

[A report of the meeting at Wells will appear in our next issue.]

DRINKING FOUNTAIN.

I use a drinking fountain for bees of simple construction, which answers very well. It consists of a bottle or can raised upon a few bricks or stand of any kind, and furnished with a syphon tube, with contracted exit, so that the water with which the bottle is filled, slowly drips on to a slate or a brick laid upon the ground, this is thus kept slightly damp and is crowded with bees without any danger of drowning. The simplest syphon tube is of small composition metal gas piping with the end nearly closed so that it drips very slowly. The bottle may be ornamental as desired, or any old stone jar will do.—F. L.

WAX-MOTHS IN SAW-CUTS OF FRAMES.

On removing the quilts of hives in which the frames have saw-cuts in the top bars for fixing the foundation, I have found several wax-moth grubs in the clefts, where of course the bees cannot get to attempt to dislodge them.

How the moths got there to deposit the eggs I know not, but there they were. I would advise all bee-keepers to examine the upper sides of these top bars carefully. The clefts will be found to be partially filled with whitish dust, and on searching with a knife the grub will run, and can be seen and destroyed.—F. L.

PRIZE SCHEDULES.

Now that Committees are at work on this subject allow me to suggest that the size or capacity of sections be not too strictly defined. A given weight of honey in sections not exceeding, say two pounds, is to my mind preferable to stipulating that they be of a certain size.

The Americans have largely adopted half-pound size, and for my part I have found that 1½ lbs. ($6\frac{1}{2} \times 4\frac{1}{4}$) is the most useful for the bees and most saleable for the market. A pound and a half looks bigger and cheaper at 2*s.* 6*d.* than a pound at 1*s.* 9*d.*

My bees at all events greatly prefer the increased room for clustering, and last year filled that size quite as quickly as the smaller one. I would suggest that a two-piece section be used, and that the bottom part ($4\frac{1}{4}$) be not attached until the section is nearly finished. By this means the whole heat of the hive rises unbroken to the section top from which the bees hang when clustered for making wax.—E. H. BELLAIRS.

SECTIONS ON SKEPS.

At a recent visit to a bee-keeper, who has had a large number of straw skeps for many years, I was so much struck with his remarks that I forward them to you for insertion in the *B. B. J.* if you deem them deserving of a place in its pages. 'My bees,' he said, 'are now much more valuable than they used to be. You have taught me not to destroy them, and also how to drive and winter them. You have shown me how to put boxes and sections on my skeps, and I receive far more from them than formerly, for in the summer I sold my best honey to the gentry around at eightenpence a pound, whereas, formerly I never received above elevenpence. Moreover, I now can get more swarms, as I don't destroy my bees.' The person to whom I allude is the most experienced

bee-keeper of his class for many miles around. He had tried the bar-framed hive, but without success, for, if the truth is to be told, he is one of the numerous class who are not inclined to try new things; and, even if he does, from want of skill or want of courage, such attempts usually end in failure unless they are of the simplest character.—E. Bartrum, *Gt. Berkhamstead, Herts.*

MR. SIMMINS'S FEEDER.

A description of the feeder I use may be acceptable to the readers of the *Bee Journal*. It can be filled without being disturbed, the syrup cannot be found by robbers, and, above all, it gives the bees an independent supply of water *by condensation* during the early months of the year. The heat from the cluster of bees coming in contact with the cold surface of tin causes the accumulation of sufficient water for the needs of any colony. There are about twenty-four square inches of surface to the bottom of the feeder; and this I find ample, but would not advise them to be made with less extent of surface, as many colonies would not then get sufficient water.

The feeder is very effectual and economical, and yet so simple, that it can readily be described, so that all may understand without putting the *Journal* to the expense of an engraving. In the first place, it is a simple trough, open at top, made of tin, eight inches long by three wide, and about two inches deep. The bottom is set about $\frac{1}{4}$ in. up from the lower edges of the outside rim, and therefore, when placed over the feed-hole the bees have a passage along the whole under-surface of the bottom, but are unable to get out, and no robbers can get in. Where not covered up with a cushion or other quilting, a piece of glass is simply laid on the top, when the state of the contents may be seen at a glance.

And now for regulating the feed. In the bottom of the trough are pinched three or more holes about $\frac{1}{8}$ in. diameter. Cut up some coarse linen into small pieces of about $\frac{3}{4}$ in. square, roll them up closely, and fit each hole with one of the rolls, and the feeder is ready for use, and all one has to do is to go round with his can and pour in the syrup without the bother and mess of turning up, and then replacing a lot of sticky bottles. The quantity desired for any given colony to appropriate daily according to its needs may be regulated to a nicety by simply having the little rolls of linen tighter or looser as occasion requires. They may be drawn in so tight that not a single drop of water even can soak through; or, by inserting them only just tight, or slightly more so, syrup may be given at the rate of from a quarter to several pounds daily without the slightest waste by dripping.

I adopted something similar three years ago, in the shape of a meat-tin, with strings passed through the holes at the bottom, and finding the plan so effectual I have had a lot of feeders made of the pattern before described. Our village blacksmith makes them for me at a cost of *only fourpence each*, made with unturned edges; and now I find I have, what many other bee-keepers have longed for—a feeder that can be filled as it stands on the hive without being removed. At the same time it is cheaper, and is not affected by atmospheric changes, as is the case with bottle-feeders. With inverted bottles and similar arrangements, one often finds the syrup escaping in a stream on warm days in spring. The rise in temperature, together with the additional warmth produced by the bees after the excitement of a flight, causes the contents of the bottle to expand when a quantity is forced out to run away in waste.

Colonies with a large quantity of honey and pollen may be made to use up nearly the whole of their stores in the production of brood by simply placing an empty feeder in position (with the holes stopped), so that they have a water supply always at hand. I do not myself use candy, but those who do need only invert the feeder over a few sticks above the feed-hole, when the water produced by condensation will enable the bees to liquefy it without exhausting themselves in searching for the necessary article abroad.—S. Simmins, *Rottingdean, Brighton.*

AMOUNT OF FOOD REQUIRED BY DIFFERENT STOCKS.

Can any of your correspondents throw any light on the important question, How is it that different stocks in apparently similar circumstances require, or rather consume, such different amounts of food? I know it is said to depend upon the amount of excitement caused by early breeding, or other causes, or by the efforts of the bees in chilly hives to keep up the temperature by the consumption of food; but as regards this last, I suppose no one will say that more food is consumed in cold than in mild weather. And the other reasons given do not explain all that I have noticed. For instance, I had this winter two imported queens joined to stocks precisely similar as regards hives, numbers, and stores; both began breeding freely about Christmas, and reared large numbers of young bees; but in one the stores were hardly touched: they still had plenty the last time I saw them; the other was almost lost early in February through starvation, and I have had to feed very liberally ever since, or I could not have saved them.

Very frequently those stocks that are best provisioned for winter become the poorest, without any apparent cause, so that it is very difficult to say how much food is really necessary.—G. S.

WHAT SHALL I FEED MY BEES WITH?

This question, as spring opens, will interest many bee-keepers. Some will simply seek to feed to keep alive those colonies that have not stored enough to last until plenty reigns. Others will feed to stimulate the mother bee to active egg-laying, and so, early in the season, have strong colonies. It is to the latter that these remarks are more particularly addressed. I purpose taking it for granted that those I address concede the principle of supplying their bees a spring feed of some sort, with a view to practising this cardinal virtue in bee-keeping, viz.: 'Keep your colonies strong.' I purpose to point out certain substances that may be employed, and the manner of so employing them, that remarkable results may be obtained by those who choose to give the matter of feeding their careful attention this spring.

This spring feeding is a sort of mild deception, played upon the mother bee, for feeding being once regularly entered upon, the bees get daily more active, and, literally, force food on the mother bee, making her believe that the time to be 'up and doing' has arrived; a little earlier than usual, she may think, but still it has come. So, as long as the workers keep on assuring her that spring has arrived, she deposits the eggs which are to be the groundwork of the success of her colony.

Now comes in the question, 'What shall I feed with that shall induce those worker bees to overfeed the mother bee, and force from her a supply of eggs, equal, if not greater than it would be at the most favourable natural period of the year.' As spring opens, we see carried into the hives, first, that substance called pollen, obtained from flowers. It is now known that bees eat pollen, and, moreover, feed it to the young, growing bees, hence its old name of 'bee-bread.' That pollen is eaten, the microscope proves, in the hands of a Scotch authority, who writes: 'When I examined the excrements of bees, even when no brood was being raised, I found them largely consisting of the indigestible husks of the pollen grains.'

Now, food is of various kinds, but all the constituents of food must be capable of assimilation by the animal eating thereof, and each constituent must go to repair a

definite waste in the animal organism. In animal organisms we have three distinct classes of substances, viz., mineral, non-nitrogenous, and nitrogenous. All foods may be classified as follows: mineral—carbonaceous or respiratory (generally called heat-givers): nitrogenous or nutritious (generally called flesh-formers).

All foods are principally composed of the chemical elements known as carbon, oxygen, hydrogen, and nitrogen, combined in varying proportions. Under the head of mineral we class water, salts and ashes. A large proportion of all animals is water, and of this element of food a supply is required to replace loss by evaporation, and for the changes food undergoes in the body, while being dissolved and made assimilable. What we know as salt, and the salts of various minerals, are of great service in facilitating the absorption of water, and building up the framework of the body.

The heat given from the non-nitrogenous portions of animals—starch, sugar and fat, are examples. These are highly carbonaceous, and, when taken into the animal system, there unite with the oxygen, and a slow combustion takes place, evolving what is known as 'animal heat:' portions of these carbonaceous materials undergo various changes, and are laid up in a solid form in the shape of fat in the animal body.

The flesh-formers, or 'nutritives,' from the nitrogenous portions of animals—albumen, fibrine, and caseine, are examples. These all contain nitrogen, the element absolutely necessary to the growth and formation of organic tissues, by which all muscular force and nervous force is brought into action—bones, hair, skin, nerves, all require nitrogen to form them, hence the term 'nitrogenous food.'

Albumen is required by all egg-laying animals. Albumen is that form of nitrogenous food that goes to form nerve substance, and it is through and by the nerves all animals are put in relation with the world exterior to themselves. By the nerves the senses are governed. Fibrine is found in the blood of all animals, and it constitutes the whole of their muscular tissue. Locomotion, whether by leg or wing, must spring from the presence of fibrine. Caseine is that substance which we separate from milk under the name of cheese, and is an essential of food. These elements of food are all to be found in the vegetable world, and it is plants that have the power of converting inanimate mineral substances into the necessary vital products of the whole organic kingdom.

At the opening of the year, bees have to provide for the animal heat necessary in the hive, the albumen necessary for eggs, and the growth of animal tissue in the young larvæ and bees. Water (often impregnated with salts of the various minerals) is generally in abundance and easily obtained. To the vegetable world the bees go to obtain those heat-givers and flesh-formers I have mentioned.

Let us return to pollen and analyse it. Analysed it shows in one hundred parts:—

Water	12.74
Ash	2.72
Albumenoids	21.75
Sugar	26.20
Nitrogenous organic substances	36.59

By this we see, pollen contains a portion of sugar essential to the production of animal heat, but the albumen and nitrogenous organic substances are *there* in large quantities.

Egg substance being composed of one-seventh pure albumen, contains, as already shown, 'nitrogen,' and the poor mother bee, from whom we want to force some 3000 eggs per day, must be fed with nitrogen in ample quantity. From these eggs come the larvæ and bees, all in a state of growth demanding supplies of flesh-forming and nerve-forming food. These albumenoids and nitrogenous, organic substances, shown to be contained so largely in the first food the bee seeks in spring, *are*, as you can now readily understand, the most important to supply. 'Nitrogenous food,' therefore, is the answer to the question, 'What shall I feed with?'

The seeds of plants contain, in a varying degree, these flesh-forming or nitrogenous foods, and this is why artificial pollen, in the shape of pea, rye, barley, oat and wheat flour, has long been used in the open air as a spring stimulant, only, however, available on open, sunny days. Comparatively few have known the actual reasons why bees will take one kind of flour in preference to another. It is simply because there is in some a higher percentage of the nitrogenous element than in others. Rainy and windy springs, which prevented the bees from getting to the artificial pollen, gave stimulus to invention, and, at last, it came to be fed *inside* the hives, where brood-rearing could go on uninterruptedly, in all weathers.

The Germans long ago decided that there is an advantage to be gained by speculative, nitrogenous feeding of bees in the interior of the hive. In the spring of 1878 a German reports having obtained the most favourable results, and stated, that in his neighbourhood such was the miserable weather (cold winds, &c.) that not ten per cent of swarms were reported, yet those who, including himself, fed the bees with flour inside the hives, increased their colonies 50 and 100 per cent, and had very good harvests of honey. Another renowned bee-keeper reported like good results. Scotch bee-keepers have long been stimulating in spring, by means of cakes, composed of rye-flour, honey, &c. The composition of these cakes having been communicated to the Swiss Bee-keepers' Society, that society went to work in a very practical manner, got a baker to make the cakes, and ever since they have regularly advertised in the Swiss bee paper, 'Cakes of Sugar, with or without Flour.'—ARTHUR TODD. *American Bee Journal.*

(To be continued.)

Echoes from the Hives.

North Leicestershire.—The last of the snow disappeared on the 30th ult., and the bees were well on the wing on the 31st. April 5th was a grand day for them—the thermometer standing at 62° in the shade. Up to date (9th inst.) uninterrupted bright weather has prevailed, but the nights have been very frosty. Pollen has been plentifully gathered by the bees from crocuses, arabis, coltsfoot, and willow. Some stocks seem none the worse for the cold spell, but others, though previously active now show signs of a determined inactivity, suspiciously symptomatic of queenlessness.—E. B.

Hants, South Warnborough.—The unfavourable weather of last month has either injured or delayed the growth of those plants and shrubs upon which bees depend for the earliest supply of their natural food, and, with few exceptions, the cold nights of this month up to now (12th), together with east winds, have prolonged this check in vegetation. Bee-keepers who have neglected to assist their stocks with small nightly allowances of syrup will therefore find them weakly, if not in a starving condition. The losses among cottagers from neglect of this kind are numerous at this time, and one gentleman near here, who has been an advocate for bee-houses, has lost seven out of eleven thus housed, and he cannot boast of the condition of the remaining four; rightly or wrongly he lays the blame to the bee-house. He thinks that bees thus packed closely together are more likely to rob each other; that being covered in out of draughts they certainly begin to breed earlier, but that the workers are tempted by the internal temperature of the bee-house to take flights in unsuitable weather, such as we have had during March, they get chilled, and never return, and this daily loss of bees soon has its ill effects on the stocks. He thinks also that bees consume more food in these

houses during the winter where they are free from external changes of temperature; and to this cause he chiefly attributes his loss of stocks from starvation, since those on separate stands, equally provided in the autumn, are now not only alive, but still have a small portion of their winter supply on hand.—W. H.

East Suffolk.—The weather here has been exceedingly fine; but the nights have been very cold, so that the bees are very backward. I do not think the bees will be ready for supering until the end of May.—E. F. G.

North-west Shropshire.—With the last day of March, the unexpected winter of the four previous weeks ended, the bees were taken from the cellar where they had been replaced on March 7th, and they recommenced carrying pea-powder from a large tin tea canister, and pollen from the spared crocuses. On April 2nd my first crimson tulip (Duc Van Thol) opened; on the 6th a perceptible diminution of bees was perceived in the canister; and on the 8th they had all, with the exception of two, abandoned the pea-powder altogether. On the 8th I saw (and slew) the first queen-wasp of the season; also the first butterfly. The first humble-bee was seen on the 4th. I noticed that up to the 8th inst. only yellow pollen and pea-powder were taken into the hives; but with the abandonment of the artificial, natural pollen of all colours, orange, dark grey, olive green, bright yellow and scarlet, was carried in. Water, given in a wide-mouthed glass bottle reversed upon any flat surface, and just sweetened with a spoonful of syrup, was eagerly taken by the bees. It also acted as a fatal bait to queen-wasps, seven of whom, within the space of a morning, I treated as the life-guardsman did the Egyptian warrior, *i.e.* severed in half with my blade. This hint should be noted by brethren of the craft. The weather on the whole has been most favourable during the present month (April), and pasture abundant; but now, 17th inst., with the opening plum, pear, and other fruit trees, come the blustering cold winds we should have had in March. Still the outlook so far is good.—John Peel.

Warwickshire, Weston-Leamington.—There were a few nice days at the beginning of the month: noticed a few dandelions on the 5th, and in passing through a wood the same day saw the bees very busy on wood-anemones, while a willow, covered with palm, was all alive with bees; then a cold spell for a few days. On the 13th the Rev. H. R. Peel paid a surprise visit to my cottage, though I am sorry to say I was not at home. My wife showed him my apiary, though it was too cold for bees to be out much. A few plum and blackthorn and wild cherry blossoms are about all we have at present for forage.—John Walton, *April 19th.*

Wilts: Devizes District.—Hives rather weak, but breeding to utmost of their power; but depending on daily income, having consumed nearly all stores. Neglected stocks nearly all lost, but others rapidly improving. —*Salisbury District.* Early in the month bees breeding fast, followed by a severe check, but improving rapidly now.—*Hungerford and Trowbridge.* Bees well attended to, are breeding freely, but many stocks have been starved this month. No reports received from the other parts of Wilts.—W. E. Burkitt, *Hon. Sec.*

South Cambridgeshire.—Stocks seem to have been thrown back considerably by the cold March; and although young bees are now hatching out in numbers, the hives appear to be not so well filled with bees as they were a month ago. After a spell of lovely weather there is a return of the cold north-east winds with snow-storms, intermittent with bright sunshine, very trying to the bees. Dandelion flowers, which are very numerous in the pastures, provide a splendid supply of pollen just now. The prospect for apple-blossoms is good; and, coming later than usual, it is likely to be more useful as a honey-producer.—S. G. Sawston.

Sussex.—Following upon the wintry weather of March, came a genial and busy month for the bees. The first day or two the earliest natural pollen of the season was brought home, principally from the furze, which the bees seem to prefer to dandelions, of which there have been many in the meadows. Although the only rain we have had was a good soaking shower on the 18th, the bees have not been able to work every day, as occasionally we would have dull and sometimes windy weather; but on the whole they have been very active, and all good colonies are building up rapidly. They are now busy on the fruit bloom, and patches of last year's turnips and cabbages that were put in to flower early to induce rapid breeding before the main crops come in. I have a good opinion of Arabis alpina, of which I am gradually extending the plants as opportunity offers. Limnanthes Douglasii, however, I do not consider a profitable bee-plant, as it requires too much attention to keep it in order, and besides does not come in so early as many others; with a limited area, the bee-keeper must have those plants that bloom a month or six weeks before field crops come on, or his labours in that direction will be fruitless. It is also better to have only one or two kinds of some extent, rather than have a great variety in smaller patches. Bees know that they cannot work with profit upon a few plants only, and will neglect such for a larger crop of some inferior kind. Of all early bee-plants, I think the wallflower, properly cultivated in large breadths, will pay better than any other for the attention given, yielding largely of both pollen and honey. I am now putting out plants sown last autumn, and which will be in good order next spring. Mignonette I am also sowing, which will be planted where cabbage and turnips are now in blossom, and will be valuable for autumn stimulation; as in addition to honey, the quantity of pollen it yields is enormous. Other beds will be sown with mustard about the end of July, which too will come in after late field-crops of sainfoin and clover.—S. Simmins, *Rottingdean, Brighton.*

Hunts, Somersham, April 21.—The weather of the present month, with the exception of the last few days, has been very dry and warm, bees have consequently been very busy. In and around Somersham, within a radius of over five miles, there are at the least 250 stocks of bees, but one stock, excepting my own, only in a bar-frame hive, and that of home manufacture. In and around Huntingdon there are many advanced bee-keepers. I visited the apiaries of Mr. Allen, Godmanchester, and Messrs. Sharp and Howard, Huntingdon, to-day, and was pleased with what I saw, particularly the many inventions of Mr. Howard, one of which was a capital substitute for distance pins, &c., viz. a thin piece of wood 1½ inches long screwed near the ends, but at right angles to the frames. When extracting, this piece of wood is pushed in a line with the top bar of the frame. I have now visited most of the bee-keepers in this neighbourhood, and have found many strong stocks, more moderately strong, and some very weak. The mortality amongst bees has been great this spring, even in the apiaries of advanced bee-keepers stocks have been lost.—C. N. W. *Somersham.*

Essex, April 21.—During the early part of the month we had favourable weather for bees, but now we have a return of cloudy skies with cold north winds. Our expert has been visiting the apiaries of members; he reports mortality in bar-framed hives to be 13 per cent, straw skeps 30 per cent. Bar-hives were generally in good condition, drones being found in many hives during the week ending April 14. Sealed drone-brood was found in one straw skep only; he also adds that a great many labourers (not members of our Association) have lost all their stocks.—G. H. A.

Cairnie-by-Keith, N.B., April 20th.—About the 8th instant we got clear of the snow, and all hives were carefully inspected. I found that a very large quantity of food had been consumed during the past four weeks, breeding was also much checked. Feeding is

being attended to, and if we are favoured with a good season I anticipate good results. Up to the present date, April 19th, I have seen no natural pollen carried into any of my hives. During this month our district is very late. In very good seasons honey is not abundant until about the middle of June. The time, and the way we fill our supers, &c., will be carefully recorded as the season advances. It may be interesting to note that I had two queens (I might say two swarms) in one hive from September to March. The hive was a large Combination, and in September I could not find any brood; I had examined her for several weeks previous. I got a large swarm of blacks from a friend, I united them to my Italian stock, but did not seek to remove the supposed unfertile queen. In the month of February, I found the Italian part of the family in the back part of the hive, the black in the front with an empty comb for a divider. My joy was great to find both queens fertile. In my last examination the black queen was gone, whether she had died or taken flight I cannot say.—A. Cockburn.

Queries and Replies.

Query No. 571.—*Crown-boards and Quilts.*—Do you recommend the use of crown-boards? I find that when the time comes that bees propolise, the quilt gets very messy, that the pulling off disturbs the bees, and that the putting on is apt to kill some. The crown-board lets air over the top of the frames, but in the warmer weather this should be no disadvantage.—F. W. S.

Reply to Query No. 571.—No; quilts are very much better, even though they get propolised. They are easily removed even when cemented firmly to the frames. If you stand in a position so that the ends of the frames are towards you, and take hold of the top end of the quilt farthest away from you and turn it towards you, then with a sudden jerk pull it towards you. It may be removed in this way so suddenly that it will not disturb a single bee. If the calico is so much propolised as to crush bees it ought to be rejected, and a clean one put in its place. The cost of unbleached calico is so small that an ordinary sized quilt will not cost more than about 1*d.* When the calico quilt is laid on the frames the carpet, or whatever else is put over it, should not be laid on until all the bees have got away from the top of frames.

Query No. 572.—*Mites in Pollen.*—'Miss E. Preston, Marlborough, forwards a small box containing a piece of comb, apparently infested with a species of mite. All the combs she put by in the autumn that had any bee-bread in it have these little insects, which apparently reduce the bee-bread to powder, and then seem to disappear. She will be very glad to know *what* they are, and if it will be safe to use the combs this year? If so, would it be advisable to wash them over with salicylic acid solution first, or to do anything to them?'

A portion of comb, containing an amount of pulverised desiccated substance, was received, but it was difficult to decide from it the nature of the insect which had infested it. While pondering over the matter, we received the following letter from J. L. Shadwell, Esq., of Ealing, with two carefully drawn figures, showing some of the animals and dried pollen with eggs attached:—

'On examining some combs which have been kept in a dry cupboard during the winter, I found the pollen they contained apparently dried up, but on examining some of the powder under a microscope I was surprised to find a large number of animals, which I think belong to the class Arachnidæ. I send you as good a copy of the pollen as it appeared under the microscope as I am able, drawn rather under difficulties, as the microscopic field was "all alive." I shall be much obliged if you can give me some account of these "acari," as I have never heard of a case where combs have been infested in this way. Are the combs of any use, or must they be destroyed?'

Reply to Query No. 572.— With the assistance of the figures forwarded we have been able to identify the insect. It belongs to the Order Arachnoidea, sub-Order Acaridæ, and family Tyroglyphidæ. It feeds on old and decaying cheese, and flour in a state of putrefaction; and we should infer from this, that the pollen, having been kept in places where there was little ventilation, was in a putrescent state. The insect is generally called Tyroglyphus longior, but English writers give it the name of Acarus Crossi; this being the insect that Mr. Cross thought he would be able to produce by means of electricity. But as Creative Power is as necessary and as visible in the tiniest animalcule as in the largest mammal, we may conclude that his experiments were fruitless. For further description of the insect see Andrew Murray's *Economic Entomology*, p. 271. Salicylic acid may be beneficial; but if the powdered substance is shaken or blown out, the bees themselves will clean out the cells.

Having requested Mr. Shadwell to subject to his microscope healthy and infected pollen, he reports:—

'I was surprised to find so great a difference in the size of the globules and in general appearance. In the healthy pollen the yellow globules are gathered from the dandelion, and are not, as they appear on paper, granular but prickly. I am unable to say what plant the other pollen, with the granular nuclei, was gathered from. The infected pollen is composed of fibres and granular masses of shrivelled pollen, with an abundance of acari and their eggs. I am unable to say what the fibres are, but they do not seem to exist in healthy pollen, as I have tried several samples and am unable to detect their presence.'

We regret that we are unable to reproduce the drawings which accompanied Mr. Shadwell's letter.

Query No. 573.—*Test for Pure Honey.*—Is there any certain way of detecting the adulteration of honey with sugar, and determining the amount of such adulteration?—E. B.

Reply to Query No. 573.—At the general meeting of the B. B. K. A. in 1881, it was stated by our worthy Chairman, T. W. Cowan, Esq., that at present there existed no reliable test for detecting the admixture of sugar syrup, but that a friend of his, Mr. O'Sulivan, of Burton, was prepared to carry on experiments; and that when sufficient progress had been made a paper would be read stating the results. It is very desirable that there should be some means of testing pure honey in which perfect confidence may be placed, and we are glad to announce that a paper on the adulteration of honey and wax will be read at the Knightsbridge meeting by Otto Hehner, Esq.

Query No. 574.—1. Will you please tell me in the next month's *Journal* the most profitable way of managing a bar-frame hive? 2. Do the bees work best over the brood-nest, or at the back of it? 3. How many frames do they require to work on for the brood nest while supering?—E. F. Gooding.

Reply to Query No. 574.—1. We should advise our correspondent to procure a copy of *Modern Bee-keeping*, and carefully study its teachings. 2. The bees work best at the back of the hive. 3. Five frames would be sufficient if kept free from honey.

Query No. 575.—1. *Glucose.*—Is glucose good for bees? if so, when and how is it best to use it? 2. *Crosswise Frames.*—Do you prefer frames parallel to entrance, or at right angles, and why? 3. *Honey Gathering.*—I have one frame-hive and want to gather honey *only*, would I have to cut away queen-cells to keep them from swarming; if so, how often would I have to do it?—Durham.

Reply to Query No. 575.—1. Glucose or grape-sugar is a constituent of the juice of grapes, cherries, figs, and other sweet fruits; it also enters largely into the

composition of honey. It is therefore suitable for bee-food. It may be given to bees whenever it may be desirable to feed them in the proportion of three of glucose to one of syrup; it has been found to answer admirably, the bees taking it freely, and there being no signs of crystallisation. It is, however, condemned by many American bee-keepers, being considered by them a cause of dysentery. 2. The practice of using frames across the hive has, of late, grown into much repute among advanced bee-keepers in this country. In Egypt, Japan, America, and on the Continent, the cross-wise principle is largely used. The advantages are chiefly in the convenience it affords for enlarging or reducing the space to meet the requirements of the bees and the exigencies of the season. 3. When the honey harvest arrives, it is a wise counsel for the prevention of swarming to remove the queen, and one week afterwards to cut out all the queen-cells save one; and to do this effectually a similar process of excision must be gone through after the lapse of three or four days. The dethroned queens may be utilised by placing them at the head of swarmed stocks, or by being offered for sale.

Query No. 576.—I. I have a Ligurian queen which appears to breed only drones, many of which are hatched, but being bred in worker-cells are far smaller than ordinary drones. Are these drones of any use for breeding purposes; if useless, would they be injurious to other stocks when the young queens fly? 2. What is the proper course to take with reference to the stock mentioned?—H. A. S.

Reply to Query No. 576.—I. The queen has evidently been hatched after the destruction of the drones. The question whether these drones are perfect drones, capable of pairing with queens, has not been satisfactorily determined. Dr. Dzierzon answers it in the affirmative; Mr. Abbott in editing the *Rational Bee-keeping* states that his opinion is the reverse. They would not be injurious to the other stocks when the young queens leave the hives. 2. Remove the unfertile queen, and procure a new one.

Query No. 577.—What will be the best thing for me to do with a hive that I have reason to believe contains no queen? I have only three hives, and am very unwilling to unite the bees of one of my other stocks and should be glad to know of any way of providing them with a queen? Would it do for me to take a bar from one of my other hives containing eggs and place it in the queenless hive?

Reply to Query No. 577.—If in frame-hive it is easily ascertainable whether your bees are really queenless. If they are, we fear by the time this reaches you they will have dwindled to a very small number, and the only plan to adopt is to unite them to one of your other stocks. If the hive is still full of bees, you might obtain a queen from any dealer in bees (see our advertising columns), and introduce her by means of a cage. Taking a frame from another hive would only weaken the stock, and would not do much good to the queenless bees, it being too early at present for queen-rearing; you might try the plan, however, if you have a stock strong enough to spare it.

Query No. 578.—*Bees Suffering from Dysentery.*—One of my stocks in a frame-hive is very weak, and almost every day I notice some of them falling off the flight-board unable to fly; they spend the day shivering and trying to rub themselves, and have a slightly mouldy appearance with their tongue extended. They have plenty of sealed store, some of which I have uncapped, and have a little brood. I changed them into a fresh hive a couple of days ago. My hives all face south, and the sun is on them from 9.30 A.M. till 5 P.M., and in a very sheltered position without shade. Would you consider the place too warm?—E. Macquillan, *Wexford*.

Reply to Query No. 578.—From your description we should say that your bees are suffering from dysentery, which has been very prevalent of late. You have treated them correctly thus far, but we advise you to close up the hive by division-boards, to as many frames only as the bees can well cover; give additional warmth by placing three or four thicknesses of felt, or woollen, over the frames, and stimulate by feeding gently with warm syrup. If you can spare a frame of brood from another hive, and there are bees sufficient to cover it, give it to the weak stock. Your situation cannot be improved upon, except that it is well to have shade from the mid-day sun during the heats of summer.

Query No. 579.—*Supers for Straw Skeps.*—As this subject is now so much ventilated, I think you should give us a cut of one or two descriptions, as now is the time to be getting them made and introduced to the notice of bee-keepers who are anxious to introduce improved skep culture.* If the super, or the *cover* of the super, could be utilised as a *roof* to protect the skep in the winter, it would be a good plan. The super, or crate, should have a cover to protect it from the sun. I. Should the zinc excluder be used over the full extent of the adapting board and raised $\frac{3}{8}$ths of an inch above it, so that the bees could come through top hole and creep about and get into super at *any* point; or should the zinc be simply over the hole in the skep, or super, or how? 2. Will the space between the bottoms of sections be sufficient to exclude the queen in the majority of cases from entering supers on straw skeps or on bar-frames?—J. Crosbie Smith.

Reply to Query No. 579.—(1.) Yes, it is better to use it so, as it gives bees more room to enter the supers than if only put over the hole.

(2.) Our most advanced bee-keepers do not recommend the use of excluder zinc between bar-frame hives and supers, as they prevent the free passage of the bees. The queen rarely enters the sections, the $\frac{3}{8}$ space usually being a sufficient restrainer, in addition to the small space between the sections and the separators.

Query No. 580.—(1.) What is the cause of queens laying several eggs in some cells, and none in others? and what the effect of several being so deposited in one cell? (2.) Best method of uniting stocks when already in frame hives? (3.) How prevent loss by return of bees after union to old stands? (4.) Is it safe to use combs which have become a little mouldy from exposure to damp, or which contain last year's brood? (5.) Cause of a strong stock with young queen, having no eggs, though fed regularly through one hole, with thin syrup, and supplied with pea-flour close by?—H. J. S.

Reply to Query No. 580.—I. A good young fertile queen should deposit the eggs regularly in the cells. Sometimes a queen will lay several eggs in one cell and miss others generally when she finds them not ready for the reception of the eggs. The workers are able to transfer the superfluous eggs from one cell to another, as only one would be allowed to remain in a cell to hatch.

(2.) The method given in the *British Bee-keeper's Guide Book* is as follows:—'Bring the hives close to each other (moving the stocks not more than two or three feet a-day, not reckoning those days on which they are not able to fly) and induce the bees to fill themselves with honey from their stores by blowing a little smoke into each hive. Open the hives and place the combs with the adhering bees into one hive. If there are more combs than one can receive, insert those combs containing brood into the centre, and fill up the hive with those containing honey. If there is any choice of queens, the inferior one may be removed. Give them a good smoking, cover them over, and all bees being filled with sweets will generally unite peaceably.' If there is no honey in the hive the bees should be sprinkled with scented syrup, and if the queen be a choice one we should take the additional precaution of caging her on one at the combs for twenty-four hours.

* This request we shall endeavour to comply with.

(3.) Answered above, by bringing hives close together.

(4.) Comb foundation being so cheap now, we should not recommend using mouldy combs, and certainly not combs containing last year's dead brood.

(5.) The queen may from some cause have become unfertile, and if the feeding with syrup be continued and the bees are carrying in pollen abundantly, and she still refuses to lay, she ought to be removed and a comb containing eggs inserted.

QUERY No. 581.—(1.) *Humble Bees.*—I enclose a specimen of a magnificent race of bees which are plentiful about this neighbourhood. Will you tell me its breed? How would my Ligurians cross with it? Are the parasites on it the same as those described in your last number? 2. *Hybrids.*—In what points are crossed Ligurians and blacks inferior to pure Ligurians, or superior to pure blacks?—SPEX.

REPLY TO QUERY No. 581.—1. The specimen forwarded is a *Bombus terrestris*, the largest of hymenopterous insects. The humble bee is a genus of the family *Apidæ*, and has many points in common with the honey bee: it is a social insect, it lives in cells, it makes wax and honey; its sexes are the same; but in habits and in structure there is little similarity. As for its crossing with Ligurians there is as little possibility as (say) elephants consorting with giraffes. The parasites on the specimen bear no resemblance to the *Braulæ* in last number; they are *Acari*, which are frequently to be found on beetles and other insects. (2.) Ligurians are generally disposed to be quiet and gentle when their hive is opened, and may be handled without showing any vindictiveness or alarm. Hybrids under similar circumstances are excitable and irascible, and not easily subdued. As honey-gatherers they are equal to the best Ligurians or blacks. Hybrids are more disposed to rob than Italians. They have many good qualities, but on account of their savage character they are not in such high favour with bee-keepers as either Ligurians or blacks.

QUERY No 582.—*Foul Brood.*—Will you kindly inform me how I can disinfect combs suspected of foul brood? Would the fumes of ignited sulphur kill any spore that might exist, or, what would be better, some of them having sealed store in them and some bee-bread?—A PERPLEXED COTTAGER, *Widford, Chelmsford.*

REPLY TO QUERY No. 582.—Sulphur fumes will not destroy the germs of foul brood. Nothing but the total destruction of *all* the combs in the hive will enable you to eradicate the disease. Do not attempt to cut the combs out of the frames, but consign both to the flames; conducting operations at evening when no other bees are about. Boil the hive in a copper for twenty minutes, and clean off all dirt and wax. When dry, lime-wash thoroughly inside and out, omitting no crack or crevice, when it can be used again after standing a time. Meanwhile the bees should have been carefully brushed from the combs into an old skep (which should afterwards be burnt), and stood on a sheet of paper on the ground. The comb should not be *shaken* free of bees, or the honey will be dropped about for other colonies to appropriate to their own destruction. After about two days, a dozen or two will be found to have fallen exhausted from the cluster, when having consumed the infected honey they may be placed in a clean hive on two or three frames of foundation, and fed with syrup. The undermentioned solution may be added to every 12 or 15 lbs. of sugar boiled down. The hands and every implement used while operating must be thoroughly disinfected by washing in a solution of salicylic acid, made by dissolving a spoonful in a quart of boiling water, adding a pinch of powdered borax to the acid, and use when cold. It would be false economy to endeavour to get rid of the disease by half measures, such as cutting out brood, spraying the combs with salicylic solution, &c. The only effectual way is to do as before stated, thus saving yourself much anxiety. Should you have any suspicion that your neighbours are in the same plight, pay them a visit, and induce them to permit you to help them stamp out the disease in the same way, or bee-keeping will never be profitable in the neighbourhood.

To G. S.—Please give proportions of Swiss condensed milk and syrup you used as bee-food.—E. B.

[*Several Echoes and Replies to Queries are postponed to our mid-monthly issue.*]

NOTICES TO CORRESPONDENTS & INQUIRERS.

BOZ.—*Inside measure of Standard Hive.*—The top bar of the Association frames being without shoulders on the underside of their ends to prevent longitudinal movement, it is necessary for that purpose that they should touch both of the outer walls of the hive, which walls must be 17 inches apart, that being the length of the top bars. Two inches for cork-dust leave 15 inches only for the inner body, of which space 14½ inches are required for the frames to hang in. The inner walls will in this case be only ¼ inch thick, which is rather thinner than is desirable; and it would be better to use a less thickness of cork-dust and a greater thickness of wood for the inner walls. The outside walls may be of any thickness from half inch to an inch or more.

J. EVANS, *Reynoldstone.*—Your queries are mainly answered above; but as regards the making of the hive, it is easiest and simplest to nail the inner and outer boxes together, and to nail the floor-board across both.

J. G., BIRMINGHAM.—*Making Three Colonies out of Two.*—When the hives have brood in most of the frames, and are completely crammed with bees would be the proper time to make three colonies out of two, as described in *Bee-keepers' Guide-Book.*—*Queen-raising.*—Raise a queen in a nucleus as described on page 2 of this number of the *Journal*, and make your swarm when the queen is ready, or if the stocks are ready to swarm now, and you have drones hatching in your apiary, you can make your swarm and allow the queenless one to raise a queen for themselves.

J. L. W. N.—*Clearing Tunnels.*—The tunnel is too narrow, and has got choked up with dead bees dropping on the floor-board inside the hive. The tunnel should be the full width of the opening, or at least three inches wide, and the opening can be reduced by means of the entrance slides. A hooked iron should be used for raking out any dead bees or rubbish.

R. C. H., *Lewes Road, Brighton.*—The piece of frame enclosed discloses a bad case of dysentery caused no doubt by unsealed food in the hive. The other stocks apparently 'treated the same' had perhaps better opportunity of sealing their food and so escaped.

J. H., *Sawston, Cambs.*—Drone brood requires no greater heat to mature than worker brood. But in the case of cessation of income the drones are the first to be sacrificed. Probably, owing to the cold weather and the inability to gather honey, the drone eggs and brood were destroyed, and then, better times times coming on, the drone comb being in the centre of the brood-nest was refilled leading you to suppose they were the same eggs and brood unadvanced for the thirteen days since your previous examination.

E. HARNETT.—*Salicylic Acid.*—A reference to Reply to Query No. 582, will give you instructions as to the preparation of the solution. As to its use, instructions will be found in Cowan's *Guide Book*, p. 109.

J. GILL.—*Bee-farming in America.*—Descriptions of the bee-farms of America will be found scattered throughout the various journals devoted to bee-keeping in that country. We should advise our correspondent to procure Nos. 2 and 3 (1882) of that well-written and beautifully illustrated magazine, *The Century* (Warne & Sons, Bedford Street, Strand), in which he will find an exhaustive paper on the 'Bee Pastures of California.'

JOSEPH COOK, *Fairford*, C. D ORE, *Dingestow, Monmouth*, and others.—*Beginning Bee-keeping.*—We would suggest the propriety of your obtaining from some respectable hive-maker a catalogue of their wares; and having selected the hive you prefer, take it as a pattern to make others from. If you desire still cheaper bar-frame hives, consult Mr. F. Lyons' paper on 'Cheap Bar-frame Hives,' in No. 95 of *B. B. Journal*; further, obtain copies of *Modern Bee-keeping*; subscribe to *B. B. Journal*, and join the British Bee-keepers' Association.

G. S. BARNES, *Weybridge, Surrey.—Hives in a Peach-house.*—If a hive were taken into a peach-house, unless the bees were brought from some distance, and the bees got used to flying in and out of their hives, a great number of bees would be lost in their endeavour to get out of the house. There is no lack of bees to fertilise the blooms of peaches in such houses. On fine days we have seen numbers of bees in peach and orchard houses where the proprietor was not a bee-keeper; these bees must have come from some distance.

*** *Our next issue will be published on the 15th instant.*

SHOWS AND BEE TENT ENGAGEMENTS.

June 19, 20, 21.—Worcestershire Agricultural Show.
June 20, 21.—Agricultural Show at Truro.
July 11, 12.—Lincolnshire. At Gainsborough, in connexion with the Lincolnshire Agricultural Society. Stephen Upton, Secretary.
July 16 to 20.—Royal Agricultural Show at York.
July 24.—Agricultural Show at St. Ives.
July 25, 26.—Leicestershire Agricultural Show at Melton.
July 26.—Waltham Cross Horticultural Show.
July 29.—Horticultural Show at Rockingham.
Aug. 14.—Clay Cross Horticultural Show.
Aug. 15 & 16.—Shropshire Annual Show at Shrewsbury.

BERKSHIRE ASSOCIATION.

June 19 & 20.—Newbury (Marlborough and Pewsey Vale Agricultural Association).
Aug. 23.—Earley, Reading.
Aug. 28.—Newbury.

DEVON AND EXETER ASSOCIATION.

May 16, 17, 18.—Bideford, in conjunction with the Devon Agricultural Society.
July 30.—Escot Park, Ottery St. Mary.
Aug.—Dawlish.
Aug. 9.—The Retreat, Topsham.
Aug.—Exmouth.
Aug. 23 & 24.—County Show on Northernhay, Exeter.
Aug.—St. David's, Exeter.

ESSEX ASSOCIATION.

June 13 & 14.—Essex Agricultural Society at Colchester.
June 28.—Brentwood.
July 13.—Audley End.
July 18.—Maldon.

HANTS AND ISLE OF WIGHT ASSOCIATION.

June 26, 27, 28, 29.—In the Show Grounds of the Royal Counties Agricultural Society at Winchester.
Aug. 4 & 6.—At the great Summer Show of the Royal Southampton Horticultural Society at Southampton.
Aug. 23.—At the Bournemouth Horticultural Society Show.

HERTS ASSOCIATION.

July 26.—Waltham Cross Cottage Garden Show

KENT ASSOCIATION.

June 30.—West Kent Horticultural Show, Chislehurst.
July 3.—Rochester and Chatham Horticultural Show at Rochester.
July 7.—Eltham Horticultural Show.
July 11 & 12.—Blackheath Flower Show.
July 24.—Ash next Sandwich.
July 25.—Ashford.
Aug. 1.—West Malling Horticultural Show.
Aug. 2.—St. Mary Cray Horticultural Show.
Aug. 6.—Beckenham.
Aug. 8.—Tenterden.
Aug. 11.—Knockholt.
Aug. 23.—Sevenoaks Horticultural Show.
Aug. 29.—St. Peter's, near Margate.

NORTHAMPTONSHIRE ASSOCIATION.

July 10.—Uppingham Horticultural Show.
July 17.—Duston Horticultural Show.
July 19.—Rockingham Horticultural Show.
July 19.—Weston Favel Horticultural Show.
July 26.—Dallington Horticultural Show.
Aug. 6 & 7.—Northamptonshire Bee-keepers' Association Show, in conjunction with the Horticultural Show.
Aug. 6.—Oundle.
Aug. 28.—Long Buckby Horticultural Show.

SUSSEX ASSOCIATION.

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July 25.—Worth, near Crawley.
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Aug. 30.—Worthing.
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THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

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Editorial, Notices, &c.

WHO *IS* THE BONÂ FIDE COTTAGER?

[*Paper read by the* Rev. H. R. Peel *at the Quarterly Conversazione of the British Bee-keepers' Association, April* 25, 1883.]

At the General Meeting of the British Bee-keepers' Association, held in this room on the 15th of February, 1882, the Rev. W. E. Burkitt proposed, and the Rev. J. H. Dixon seconded, 'That the term "cottager," as referred to in the British and County Associations' prize schedules, should receive some authorised definition at this General Meeting.'

The report of the meeting (which you will find in the March number of the ninth volume of the *British Bee Journal*) goes on to state, 'This resolution was discussed at considerable length, the *bonâ fide* cottager proving very hard to define. It was the general opinion of the meeting that each County Association should make its own definition, according to circumstances, and the clause in the resolution relating to the County Associations was accordingly withdrawn. In respect to the Central Society, it was left for the Committee to take the matter into consideration, and report to the next General Meeting.'

It appears, then, that the united wisdom of the British Bee-keepers' Association (comprising in its ranks representatives of all the learned professions, and embodying within itself all sorts and conditions of men) was unable to solve the question, Who is the *bonâ fide* cottager? Mr. Burkitt's resolution was, as you have heard, discussed at considerable length. With what result? None—at least, no immediate one, except a reference to the Committee of the British—another load imposed on the back of that much-enduring beast of burden: '*Parturiunt montes, nascetur ridiculus mus!*'—'The mountain is in labour; what will it bring forth? A ridiculous little mouse?' My remembrance is carried back, quite against its will, to a song which used to be sung to our fathers and grandfathers by the elder Matthews, describing the exertions of a whole family to blow out a rushlight, and the summoning of all the parish authorities, the clergyman, the churchwardens, the parish clerk, the beadle, and the sexton, to accomplish the task, but all in vain; for no one could 'blow out the rushlight—the little farthing rushlight.'

It would appear also, that Messrs. Burkitt and Dixon, having raised this ghost—the *bonâ fide* cottager—were unable to lay him themselves, and threw him upon all their brethren of the County Associations; and again is my mind recalled to the picture which appeared in *Punch* in the days of Cardinal Wiseman, at the time when the late Lord Russell brought in and shortly withdrew the Ecclesiastical Titles Bill, of the little boy who chalked up 'No Popery!' on the wall, and then ran away. Perhaps they came prepared with their own definition of the *bonâ fide* one, but were unable to persuade the meeting to adopt it; perhaps they had been puzzled over the definition themselves, and expected the meeting to find one for them. Blessed is he that expecteth nothing, for he shall not be disappointed. You may think it strange that I, being the Secretary of the British Bee-keepers' Association, used the word 'perhaps,' as though I could not speak for certain, but I happen not to have been present on this occasion; I was, as the newspapers kindly word it, 'unavoidably absent' from this meeting, being engaged in the attempt to solve an even more difficult problem than that of the *bonâ fide* cottager. This problem and its difficulty I can convey to you most delicately and at the same time most expressively, if I repeat one stanza of an epitaph (reproduced with a slight alteration) which is to be found in a country churchyard, but not that in which the poet Gray wrote his elegy. This is an elegy too, and perhaps even a more sad and heartfelt one:—

> 'When first by pains I was annoyed,
> The parish doctor I employed,
> Whose seat of wit could ne'er find out
> A cure for the rheumatic gout.'

Nor could I, gentlemen—though I tried my best.

I do not mean to say for a moment that, had I been present on the memorable 15th of February I could have given the smallest assistance in untying this Gordian knot—I think that I should probably have acquiesced in the solution adopted, that of 'cutting it.' Many a difficult problem is unravelled in the end by adopting the old logician's maxim, '*Solvitur ambulando.*' If a meeting or an association cannot see its way through a question, let its members break up, and walk home and think over it in private. This is not, of course, what the logician meant, but there is some wisdom, nevertheless, in the application of his maxim.

The meeting which I have referred to was not the first occasion in which the term *bonâ fide* was used in relation to the cottager. In the *Bee Journal* of the 1st May, 1880, there is a report of the discussion which followed the reading of a paper by the late Mr. John Hunter on the future of British bee-keeping in a commercial point of view, and how the working classes can be most successfully aided and taught the truths and advantages of modern bee-keeping. In the course of that discussion our good friend, the Rev. F. G. Jenyns (to whom we are indebted for more than one most useful suggestion) said that 'At the County Shows he should like to see prizes offered for hives made by *bonâ fide* labourers out of old boxes or anything of the kind they could get.'

A little further on, in the report of this same discussion, I find that in reply to Mr. Jenyns, I stated that at the Hertfordshire County Show of that year a prize was to be offered for the best hive made by a *bonâ fide* cottager, but that the *bonâ fide* cottager seemed as difficult to define as the *bonâ fide* traveller under the Sunday Closing Act. I also gave it as my opinion that a cottager was a man whose income did not exceed 30*s.* a-week, and

who lived in a house rented at not more than 10*l.* a-year. I had quite forgotten all about this until I began to look up the old volumes of the *Bee Journal* in preparing this paper. What better testimony to the value of the *Bee Journal* can I offer than this? Not only does it hold the mirror up to Nature, but it makes the natural man behold himself in the glass, and will not allow him to go away and straightway forget what manner of man he was, what opinions he put forward—nay, even what actual words he used at any given point of time in our bee annals. You, gentlemen, have attended numerous meetings in connexion with this Association in this room and in others, commencing with those at the Beaufort Hotel. I must congratulate you here that you did not continue to hold your meetings in the Beaufort Hotel, kept by Mr. Delamotte, after its removal from Beaufort Buildings, near the Strand. What might have been the future of British bee-keepers in a commercial, or in any other point of view, if, during one of our meetings, the packages of nitro-glycerine, or dynamite, or other explosive matter introduced into the hotel by the 'Invincible' Mr. Norman, *alias* Lynch (what a suggestive name! his punishment would have been quite sufficiently indicated if he had been apprehended in America), had gone off, and blown into fragments the assembled representatives of law, physic, and divinity? It is said that one can never properly decide whether eels like being skinned or not, because one can never place oneself exactly in the position of the eels. I think that you might have been able to enter into the feelings of bees subjected to the driving process, when, after a cloud of smoke has been projected into their hives, they begin to feel the shocks and concussions produced by Messrs. Baldwin, Blow, and other experts, as they drum with their fists or tap with their hands on the outer walls of the bees' dwelling-house. I think that, in spite of all the attention and civility we experienced in old days from Mr. Delamotte and his family, we have good reason to congratulate ourselves that we now hold our meetings in the Board-room of a Society through whose agency the animal man, as well as other animals, is kindly treated, and protected from cruelty and violence. I say, gentlemen, that you have attended these meetings, and have given utterance during their continuance to your opinions and sentiments without being fully conscious of the fact that there was 'a chiel among ye takin' notes,' that Mr. Abbott, or his recording angel, was taking down your utterances in shorthand, and that those utterances would one day stare you in the face when you had entirely forgotten all about them. Time changes opinions as well as other things. You may find yourself advancing measures which are in direct contradiction to those proposed in past years by yourself, just as an apostle was found preaching the faith which once he destroyed. I should not wonder if, in another two years, we should find Mr. Lemare reading us a paper on the superiority of the straw skep over all other forms of bee-dwellings, and calling upon us to consign to the flames every bar-frame hive in the kingdom.

How do I myself come out of this ordeal, if I proceed to judge myself by this rule? Are the sentiments which I now hold with regard to the *bonâ fide* cottager in April 1883 different to those which I held in April 1882? Do I still think that the man whose income does not exceed 30*s.* a-week, and lives in a house for which he does not pay more than 10*l.* a-year rent—that is, 4*s.* a-week—is a *bonâ fide* cottager, or not?

Quite contrary to my expectation, and to my most agreeable surprise, I am bound to say that my opinion has not changed at all in this respect, and I will unfold to you the mental process which has led me to this conclusion and to the confirmation of my old thoughts upon the subject. I said that the motion brought forward by Messrs. Burkitt and Dixon at the General Meeting of 1882 led to no immediate result, and I used the word 'immediate' advisedly. Though the question was shelved then, the motion of Mr. Burkitt did ultimately lead to a very important result,—a result of which Mr. Burkitt and our President must share the credit between them. When it was decided that County Associations should define the *bonâ fide* one for themselves, and that the British Committee should think out some definition for themselves, our President expressed her hope that both the Central and County Associations would consider the matter carefully. She hoped that nothing would be done to deter the better class of working men from exhibiting. It might, she said, be found advisable to make two sections of classes, one for *bonâ fide* labourers, and the other for artisans, railway men, &c. Here, again, my mind is recalled to the figure of Portia in Shakespeare's play of the *Merchant of Venice*, standing amongst the doctors and teachers of the law, and pointing out to them the course which mercy should adopt and the course which strict justice should take. The Baroness was undoubtedly right. Both these classes of men are cottagers, and, in my opinion, *bonâ fide* cottagers, but a purely agricultural labourer would compete with the artisan or skilled workman on unequal terms, and, therefore, in mercy to the former, and in strict justice, it was most advisable that two sections should be made of the *bonâ fide* Cottager class, and two distinct sets of prizes be offered for competition. The Committee of the British Bee-keepers' Association fully recognised the wisdom of their President's suggestion, and you will find a division of the cottagers' classes into a section for artisans and a section for labourers only duly announced in the Prize Schedule for our Metropolitan Show of 1883. Having ascertained my own consistency with regard to the definition of the *bonâ fide* cottager, to my own satisfaction and surprise, I must confess that I have gone through some changes of opinion with regard to the competition itself in the interval between April 1880 and April 1882. When I was preparing the paper which I read at the Annual Meeting of the Devonshire County Association on 'How to instruct the Cottager in the art of Bee-keeping,' a doubt did cross my mind as to whether the men who had hitherto been receiving the prizes in our cottagers' classes were strictly entitled to them. It was not so much their 'got-'em-on' appearance, for, as I said at Exeter, the British cottager's capacity for smartening himself up is 'just as great as any other man,' and, though a man is well dressed, he may still be a *bonâ fide* cottager, but from my personal knowledge of the circumstances and surroundings of some of the competitors and from the entire absence from our meetings of Mr. Burkitt's friend Hodge in smock-frock, the question *did* suggest itself to my mind, Are we not being imposed upon? Are not these men competing in elementary classes when they ought to be competing in more advanced classes? and Does not their competition in these classes frighten away and exclude the persons for whom we intend these prizes, and whom we really wish to encourage? Mr. Walton, the well-known prize-winner in our cottager classes, in a letter which he addressed to the *Bee Journal*, complained of my remarks upon the appearance and attire of his *confrères*, and possibly feeling some qualms of conscience which led him into these self-excuses which, according to the French proverb, are tantamount to self-accusations, said (and with perfect truth) that the Committee had always allowed him to exhibit in the cottagers' class, and that it was no business of mine if he wore smart clothes. But he went on to say how much it cost him to attend the Show in London, how expensive, in fact, he found a visit to the metropolis in the London season, and here he certainly overstated his case, for in these days, when honey can be packed, and safely, in travelling crates, there is no absolute necessity for a cottager to come up to London with his honey, even if he has no benevolent friend in better circumstances than himself to take charge of his honey for him. My reply to Mr. Walton was that I had not

the slightest objection to the cottager 'getting them all on,' as far as the smart clothes were concerned, but that I wished to make sure whether the wearers of the smart clothes were *bonâ fide* cottagers, and, thereupon, I set about my task, and I set about it in this way:—

I obtained a list of all those who had exhibited in the Cottagers' Classes from the commencement of the shows of this Association in 1874, and found that in all thirty-five individuals had exhibited in the Cottagers' Classes in the eight shows which have been held. One of these was a clergyman who by some mistake entered his name in the wrong class, and was therefore disqualified. So that, strictly speaking, there have been only thirty-four competitors. In the year 1874 the names of the competitors were as follows:—S. J. Baldwin, our present well-known and much-esteemed expert, who no longer exhibits in this class; H. Wittnal, of Rangenore, Burton-on-Trent; J. Lighton, of Frampton, Boston, Lincolnshire; William Martin, now of Downley, near High Wycombe; S. Smith, boot and shoe maker, of the Market Place, Buxton, Derbyshire, a *dubiâ fide* cottager, as I expect he is a ratepayer in regard of his shop, but I believe that besides his shop, which he rents, he does also live in a cottage; J. Austin, Wart Hill, Amwell, Herts; L. Reed, West Dean, Sussex; A. Ferguson, 21 Main Street, Stewarton, North Britain; A. Weller, Beckenham, Kent; M. Freeman, Slinfold, near Horsham, in Sussex; J. Walton, Weston, near Leamington; W. Scorer, Leigh Cottage, Woodlands, Havant; J. Stephenson, Leigh Hill, Essex; T. Skinner, Swanley, Kent; J. Claydon, Windmill Lane, Greenford, Middlesex. These were the first exhibitors in the Cottage Classes in the year 1874; fifteen in number.

In 1875 there were only six exhibitors in the Cottagers' Classes, if we take out the name of the clergyman who took a third-class ticket when he ought to have taken a first or second. The only new name this year is that of W. J. Ellingham, Heaton, near Hounslow. Walton, Freeman, Martin, Clayden, and Scorer competed again.

In 1876 there were ten competitors. The names of James Thorne, of Ashwell, near Baldock in Herts; Wm. Read, of Tebworth in Bedfordshire; Daniel Free, of Great Hampden, Bucks; Joseph Allan, of Ashfield in Lincolnshire; and of Joseph Morgan, of Dunchurch, near Rugby, occur for the first time. Walton, Baldwin, Martin, Freeman, and Ellingham also competed.

In 1877 there was no show.

In 1878 there were only six competitors. The names of E. C. Youens, West Hill, Dartford; Thomas Sells, of Uffington, near Stamford in Leicestershire; and P. H. Fowler (address not ascertainable) occur for the first time. Walton, Martin, and Freeman also competed.

In 1879 there were only four competitors. No new names. Walton, Sells, Martin, and Skinner competed.

In 1880 things looked a little better: eleven competitors. M. Wood, of Walter Lane Lodge, Godstone, in Surrey; W. Hunt, South Warnborough, Winchfield, Hants; J. Filbee, of Naphill, Hughenden, High Wycombe; and L. Harris, Bradenham, High Wycombe, appear for the first time. Walton, Skinner, Fowler, Freeman, Martin, Sells, and Ellingham also competed.

In 1881 twelve competitors. G. Holley, Sherfield, Basingstoke; E. Jackson, of Welwyn, Herts; W. Woodley, World's End, Newbury; and J. Kene, Riverhead, Kent, compete for the first time. Walton, Hunt, Wood, Youens, Ellingham, Fillbee, Harris, Martin, and Sells are again in it.

In 1882 nine competitors. G. R. Lacy, of Hughenden, High Wycombe; W. Casley, of Waltham Cross, Herts; and G. Dossett, of Warnham Cottage, Godstone, exhibit for the first time. Walton, Woodley, Youens, Fillbee, Wood, and Martin are also in the competition.

To complete our statistics,—

Walton and Martin have exhibited in every show held.
Freeman in 5 out of 8 shows.
Sells in 4 ,, ,,
Fillbee in 4 ,, ,,
Youens ,, ,, ,,
Skinner ,, ,, ,,

The rest in not more than 2 out of the 8.

Now comes the question, 'Were all these competitors *bonâ fide* cottagers?' Well, as far as I know, I believe that at the time when they exhibited they fairly came under that category. They did live in cottages, which I should say did not exceed 10*l.* per annum in rental, and I should imagine that their weekly wages did not exceed 30*s.* a-week. There were, of course, the individual exceptions, but as far as I know them, I have no fault to find with them. They represent that better class of working men which our President spoke of at the General Meeting in February, 1882. Mr. Frank Cheshire hit the mark exactly when he said in the discussion upon Mr. Burkitt's paper that the class which had hitherto been benefited by the Association was the first grade of cottagers, a little above the other in the social scale. Walton and Martin are, of course, the representative men. They competed at each exhibition. I am well acquainted with Martin's circumstances, and I feel quite sure that he *is* a *bonâ fide* cottager. I had my doubts about Walton, and I therefore thought that it was only fair to him that I should visit him at his own home and judge for myself. I did so, and I can safely say that no one who saw the cottage in which J. Walton lives, and the cottage garden in which his fifty stocks of bees stand, could conscientiously say that he was not a *bonâ fide* cottager, though belonging to the higher grade of country working men.

I think that the result of my inquiry is very satisfactory, as it shows that our Association has not been imposed upon, and that we have been encouraging the *bonâ fide* cottager by our prizes. Certainly no one could more thoroughly *deserve* the prizes which we have won than Mr. Walton. We all have experienced and appreciate his invariable good conduct, civility, and readiness to oblige everybody; and I know him to be quite as much respected by those who come in contact with him in his own neighbourhood in Warwickshire as he is by us in the bee world.

How does the matter, then, stand now? Our cottagers' classes are divided into two sections: one for artisans not being labourers, the other for labourers only. This latter class will be limited, I presume, to men earning weekly wages not exceeding 20*s.*, and dwelling in cottages not exceeding 4*s.* per week in rent. The class for artisans not being labourers will, I should imagine, be filled by exactly the class of men who have hitherto been filling it. No, I am wrong; there is a new feature to be apparent in this class, and a very striking and important feature. The railway man is specially mentioned as being eligible for this class. Is Saul, then, also amongst the prophets? Is the railway man to be found amongst the bee-keepers? Here is a millennium indeed. The lion is to lie down with the lamb. I have always regarded the railway man as our greatest enemy. The railway man has been the great terror and bugbear of the honey exhibitor at all our shows. I have always thought that one of the most useful prizes we could offer would be a prize for the real *bonâ fide* 'Muddle-puddle Porter,' who should carry a packet of honey for ten yards without smashing it up irreparably and rendering it perfectly unsaleable. Now I am to regard him as my friend and brother, and to assist him in exhibiting his honey. I don't despair of converting the most inveterate bee-burner now. Hodge has now a class to himself—What will he do with it? Will Hodge compete, and will the second section of classes be filled at all? These are the ques-

tions which remain to be answered. If any one were to ask me my opinion on this point, I should be inclined to say, *possibly not yet*. I should not be very much surprised if there were but very few entries *this year* in the second section of classes '*for labourers only*.' The Associations have not touched this class as a class yet. Mr. Cheshire was quite right in saying that in this respect the work of the Association had not been accomplished; but it is being accomplished more and more, as each successive year goes by; and it is being accomplished by the County Associations acting in harmony with and in subordination to our British Bee-keepers' Association. Hodge would have been reached before now, had it not been for divided counsels and civil wars amongst bee-keepers. It is something that we have been able to maintain the Association in its integrity, in spite of these elements of dissolution within it. If the County Associations will only adopt the system of organization which is now recommended to them—that, I mean, of dividing the counties into districts (either corresponding to the Poor Law districts, or to the rural deaneries of a county, as proposed in the report by the Oxfordshire Association), and forming district committees under each district secretary by choosing one representative from each parish in the district. Hodge must be made of more impenetrable stuff than I take him to be made of if he does not yield to the pressure thus brought to bear upon him. It is these representatives of the different parishes on whom the task of converting Hodge from the error of his ways will fall. The expert's visit may be to Hodge but as the remembrance of a guest that tarrieth for a day; he may forget all the expert's exhortations when his back is turned, and go on burning his bees as usual. But the representative of the parish—the member of the district committee — will always be facing him, as a standing menace to the sulphur pit, always proclaiming in his ears, 'Thou shalt not murder.' The parish representative will gather all the Hodges in the parish into his village parliament, impress his own ideas of bee-keeping upon them, and hear from them all their views and opinions; Hodge will no longer be able to shelter himself under the policy of a masterly inactivity. The *vis inertiæ* will no longer avail him. If he does not meet the arguments of the parish representatives with more convincing arguments of his own, his brother Hodges will believe in him no longer, but will turn upon him and rend him.

If the County Associations will but adopt this method of working their counties, their organization will, I think, be as near perfection as our present circumstances admit of, but we must remember that, however perfect our organization, we need something more than this to make our Associations successful. However well the wants and requirements of our bees may be understood; however well these wants may be supplied; however much of time, trouble, or money we may spend upon bee-keeping, it is all to no purpose unless the Sun will shine upon us more than he did last year. The bee cannot collect the honey if there is none for him to collect,—if constant rains wash it all out of the flowers. We are not, however, without hope in this respect. There is a promise of fine weather, and of a more favourable season. Farmers are beginning to lift up the hands that hang down and to strengthen the feeble knees. And so should bee-keepers. We have done all that we could to command success. County Associations are springing up on every side with a celerity which is really marvellous. Even Somersetshire has yielded at last on the advice and example of its most kind-hearted and genial Bishop. We have three large shows in prospect each in positions which cannot fail to influence those portions of England which surround them. Two of these shows are entirely our own this year. Both in London and at Bridgewater all the property of the Show (which will, I hope, be large) will accrue to our Association, and give us those sinews of war without which no campaign can be carried on successfully. We are now not a mere tentative society, feeling our way cautiously, and trusting that others will join us at some future period of time. We have become a great national Association, with a good cause before us, and with every prospect of permanence and longevity. The name of our Association will be heard in the land when many spasmodic efforts which are making a great noise just now will have long been obliterated and forgotten.

We have a mission—not so ambitious, perhaps, as those of many other Associations, but for that reason all the more practicable and capable of fulfilment. Our mission is to give the labourer and the workman not only an addition to his income, but also a fresh interest in life; a new insight into the wonders of Nature; a new joy and pleasure, to be enjoyed at home, as opposed to the attractions of the public-house, which would tempt him from his home. It may seem but a little item in the mission to humanity to teach our poorer brethren the art of bee-keeping; but life is made up of little things, and it is often the simplest efforts which do the most good. Looking around, I see no reason for discouragement, but very much to inspire us with renewed zeal and energy in the task which we have undertaken. We know who is the *bonâ fide* cottager, at all events—that is one point gained; and we know that though we have touched and benefited one of the sections into which *bonâ fide* cottagers may be divided, there is another section before us upon which we have made no real impression as yet. I believe that the best exhortations which a general can give to his army before joining battle with the foe are those which are the most short, sharp, and decisive. 'You see those guns,' said the leader in the Balaclava charge, 'you have to go and take them!' You have your work before you, gentlemen, I will say to you to-night,—you have to go and do it. There is the agricultural labourer—go and teach him the art of bee-keeping. Teach him first to spare the lives of his bees, instead of burning them. Teach him next how to produce his honey so that he may be able to find a ready sale for it; and let us see him at our Metropolitan Shows, so smart, and sleek, and well-looking, that an unbelieving public shall still continue to ask the question—'Can this be the *bonâ fide* cottager?'

[The discussion on the preceding paper will appear in our next issue.]

CHEAP HIVES.

(*Continued from page* 5.)

Making hives with loose floor-boards will add to an amateur's difficulty, but they are not absolutely necessary. Abbott's directions for making the Copyable hive (they apply more or less to all sorts of hives) in the *British Bee Journal* for Nov. 1881, and Jan. and Feb. 1882. Here an inside and an outside wall are first nailed together with scantlings between to form the hollow space; when both sides are so formed the ends are nailed across at the proper distance. I could not adopt this plan with boxes: I first of all nailed in two corner-pieces and the inside wall to these. I then took a Standard frame $14 \times 8\frac{1}{2}$, and nailed a board to cover it all over and hold it stiff and square. A piece of lath, quarter of an inch wide, can then be nailed on each side of the frame and will form the gauge to keep the insides of hives the requisite distance apart, so as to allow a quarter of an inch space between the side walls and the hive's sides. I make these strips $\frac{1}{8}$ of an inch more at each side, as it is very difficult to get the exact quarter of an inch, and it is too close a shave. When I have my first inside wall fixed, I put this frame in, and place the second inside wall against it, and then force down between it and the outside wall scantlings that will make the inside wall come very tight against

the frame-end. I then pull out the frame and nail the corner-pieces on and the inside walls to them. The inside walls will then allow the frames to hang with the required space between the frame ends and hive sides. I have found a bare $\frac{3}{8}$ in. space suit. In trying to get an *exact* $\frac{1}{4}$ in. you may make it *less* and that is ruin, but a trifle more is no detriment. I make my inside wooden walls $8\frac{3}{4}$ in. high, and a $\frac{3}{8}$ in. runner makes it $8\frac{1}{4}$, and that will give $\frac{5}{8}$ in. between floor-board and bottom of frame: this allows for shrinkage, and even if it remains so it is not too much. If an endeavour is made to make a 9-in. board come in for the outside wall, it compels you to limit the space between the floor-board and frame so that no allowance can be made for shrinkage, which is almost sure to take place. Boards 11 in. deep answer best, as they can be allowed to enclose the floor-board and also extend level with the frame-tops or a little above and then planed down; or if the excess of the width is cut off it will not go to waste.

In making hives from boards they should be purchased at least a fortnight before wanted and stood on edge, with laths between, exposed to the weather, so that they will shrink. This is important in all wood, but particularly so in white spruce deal, that shrinks considerably till thoroughly seasoned. As it is easier to work while fresh, some careless and unprincipled makers use it in that state, not much caring how the hives go wrong after they effect a sale. That has been done in the Green Isle by a native maker that is apparently going to flood the market with a large number of similar articles.

Yellow pine second quality is about double or more than the price of white deal of first quality. White deal $12 \times 9 \times \frac{3}{4}$ (four boards out of the deal) cost about 1*s.* 1*d.*, and 11 in. wide a few pence more. For outside walls the boards should not be less than $\frac{3}{4}$ in. before planing and $\frac{1}{2}$ in. (five out of the deal) for inside walls. In buying plank the trade designate the plank as they are in the deal before cut, so that the saw takes an eighth off, and a half-inch deal plank will be only $\frac{3}{4}$ in. when cut. Few amateurs are aware of this, and they should look out for mistakes in ordering timber. Three boards 12 feet long, will fully make an Irish or Copyable hive 30 in. long: so that I find I can make one of these with 10 or 12 frames (10 are enough for general use and circumstances, and particularly for beginners, as they may give more than requisite), 3 or 4 broad frames, quilting, excluder zinc, paint, nails, &c., for about 5*s.* or 6*s.* Square hives of the ordinary Woodbury type would take less wood, but they would come to about the same price.

Supers and covers for straw skeps can be made very cheaply by amateurs out of either boards or boxes. Of course for amateurs the cost of labour and skill is not charged, and these undoubtedly add considerably to the cost of turning out a well-made professional hive.—J. Crosbie Smith, *Passage West, County Cork.*

WHAT SHALL I FEED MY BEES WITH?

(*Continued from page* 14.)

Cotton-seed meal as a substitute for pollen has been recommended by numerous American bee-keepers; and an analysis of the various meals shows the wonderful instinct of the bees in giving it the preference.

Cotton seed meal contains		6.50	per cent.	nitrogen.
Linseed cake meal	,,	4.75	,,	,,
Bean-meal	,,	4.00	,,	,,
Pea-meal	,,	3.40	,,	,,
Oat-meal	,,	2.00	,,	,,
Wheat-meal	,,	1.80	,,	,,
Indian-meal	,,	1.80	,,	,,

For intensive feeding, in the inside of the hive, there are many highly nitrogenized substances that may be employed to advantage. On some of these I experimented years ago, and I will now, having proved, I hope, the value of nitrogen as a bee food, mention some substances that may be employed, and methods of preparing the same.

Herr Weygandt (of Germany) prepared his bee-food thus:—'Take one pound of wheat-flour, adding thereto either some salt or a little wine, then with water make this into a batter, by mixing carefully to avoid limpiness. In another vessel put 2 pounds of sugar (or if honey, $1\frac{1}{2}$ lbs.), and mix this up in 1 or 2 quarts of water. This latter is now intimately blended with the batter, when it is ready for feeding. This food can be given thus or boiled. I gave it to my bees unboiled, and can testify to its ready acceptance by them.

My advice is to feed it by pouring over an empty comb, and hanging that, thus filled, in the hive. The bees suck up all the sweet liquor first, and a portion of flour remains in the cells, which they continue to dig away at, and by degrees carry it all off. It is best to do all feeding at night, then if the morrow prove fine for flight, those bees that can will go out after the natural supplies.

Mr. Raitt writes thus: 'Three years ago a Highland lad told me his grandmother used to give her bees a barley bannock (or cake made of barley-meal), soaked in honey every spring, and that the bees eat all but the skin; this was the very idea I was waiting for. I had previously given meal in the open air; now I should try it in the hive. My bannock disappeared, and as soon as the bees began to eat it, brood appeared. Now, when I want breeding, I make easily dissolved candy cakes, with, perhaps, one-fifth of flour, or pea-meal, in them, and as certainly as I give them, they disappear, and brood appears. The bees cannot store away much pollen; they must utilise it somehow or other. They over feed the queen, and she lays. They go on brood-raising in all weathers.'

Of highly nitrogenized foods there are two, viz. Eggs and milk, which I experimented with. In milk we have all classes of simple alimentary principles and substances together. It being composed of water, compound of chlorine salts (caseine), fat and sugar, whilst the egg contains six of the alimentary principles, viz., carbon, hydrogen, oxygen, nitrogen, sulphur, and phosphorus: all easily soluble and assimilable.

All concentrated foods are difficult of digestion, and so we supply a condiment to assist digestion, in the shape of common salt, either added to the prepared food, or dissolved in drinking-troughs.

The milk food I prepare thus:—The milk is first boiled as soon as possible after being milked, the clot removed, and then, if sugar be used to sweeten it, a pound of sugar to each quart of milk. If honey be used, the milk must become cold before the honey (a pound to a quart) is added, and it must not be warmed again. Boiling prevents souring, and coagulates the excess of fatty matters which would be indigestible, and is best removed. In the milk of asses we find a poverty of fatty matters and an abundance of sugar. Those who keep those interesting and intelligent animals, will, I hope, take the hint, and feed their bees with their milk, and report results.

The egg-food I prepare thus:—When a sufficient number of eggs have been broken into a basin, they are whisked, and honey added in the proportion of double weight of honey to a given weight of egg substance. To eggs I have likewise added a sugar syrup made of 7 pounds of sugar to 4 pounds of water. This milk or egg-food I used to give at night in tin or glass dishes, either inside the hive or just at the door, the quantity being regulated by the size of the colony. The milk food I gave every night, and did not observe any ill effects. The egg-food I used to give for two nights, and allow the third to pass without any. At each feeding I gave what I considered adapted to the strength of the colony, increasing

the quantity as it grew in numbers. Bees will store milk-food if allowed, so I took care to give only what they would consume.

I was interrupted in a course of experiments I was about making as to the relative advantages of feeding the white of egg (which is pure albumen) only, or the entire egg. The entire egg contains a great deal of oily matter, sulphur and salts, the effect of which I had not time to note. Some colleague will, I hope, experiment further this spring.

In 1879, I wrote to a journal as follows:—'The results are simply these, that by the above means you can start the queen laying at any moment, and as fast as the bees hatch out strong enough to cover the brood, every cell of a fresh frame of empty comb you insert will be found to contain a freshly laid egg. I have one colony fed on milk food only; six weeks ago it contained simply the queen and a handful of bees; they now cover four frames, having built out their comb from Raitt's foundation, and are busily engaged on a fifth. One notable fact is, that whereas those particular bees were weak and puny, never showing fight, the present generation are large, and strongly developed bees.'

From scientific investigation it would appear that the bees assist the mother bee's digestion by feeding her with half-digested, or chymified food, and thus convey into her system a larger amount of substances that go to form the eggs than her unaided digestive organs could accomplish.

There are, however, two sides to every question, so I join my warning to that of the German bee-keepers, from whose writings I learned so much, quoting the words of Carl Zwilling, a noted Alsace bee-keeper: 'Although there be apiaries at Lunebourg of sixty colonies, which by speculative feeding increased, last year, to 300, it must not be forgotten that the men who did this are old hands at the work, that they know how to prepare not only the food, but the colonies to pass the winter, and the *when* exactly to apply the artificial food. All goes well if the bright, spring sun and mild weather favour the bees in their daily excursions, but if, with a bright sun, there should be sudden gusts of wind or sudden rainstorms, then the bees tempted out of doors by the thought that the constant supply of nectar comes from the fields, instead of from man's hands, are caught, and chilled, never to reach that hive again, where the animal heat generated by each one is so much needed. A hive in this way may be quickly depopulated and the brood be chilled.'

Personally, I had ample proof of the wisdom of these remarks (and, if again feeding bees on nitrogenous diet, would place a wire-gauze door to my hives, moveable of course). Then, if windy weather sets in, with bitingly cold blasts, I would keep the door covered by the wire, shade all light off and keep the bees prisoners until the weather again becomes favourable; being careful, however, to see that the bees are not crowded for room, so that no danger from suffocation would arise, if they became excited on finding themselves prisoners.

I trust I have now, in some measure, answered the question, 'What shall I feed my bees?' I assure you, I have but skimmed the surface of this most interesting subject. It is one well worthy of a close and diligent study, and I hope some colleagues will experiment a little this spring, and, later on give us the benefit of their experience. If I have, in any measure, suggested 'food for thought,' I shall be well pleased.—ARTHUR TODD, *American Bee Journal.*

COMB-FOUNDATION.

The month of 'May flowers' and bee swarms turns our minds at once to comb-foundation, an article which advanced bee-keepers find indispensable; and of which many of my readers, after carefully looking over the advertisements and catalogues sent out by the various caterers of bee-keepers' requisites, have laid in an ample store for the coming season; but, probably, it will not comfort them much if I tell them there is comb-foundation in the market known to be adulterated with paraffin from 10 to 50 per cent, and consequently it is highly probable that the beautifully coloured and highly scented article they were so fortunate to secure at such a marvellously low price will not be taken to very kindly by our favourites by-and-by.

Apart from the question as to whether they will accept or reject wax adulterated with paraffin, we do not as Englishmen relish the idea of being defrauded by having a spurious article palmed off on us as genuine, and knowing there are many bee-keepers like myself that purchase few appliances, but derive a larger amount of profit and pleasure from making their own, I thought it would not only ensure to them pure bees-wax foundation, but add to their pleasure if I explained to them how they may make their own foundation and the casts to make it with at very little cost.

The history of comb-foundation is the history of bee-keeping in bar-frame hives. With moveable combs came the need of making the bees build their combs to the bee-master's will and not their own. At first this was achieved with narrow strips of guide made of plain wax, then came strips of midrib, the manufacture of the plaster casts, to form which was a tedious process, and involved a larger amount of patience and time than all bee-keepers had at their disposal. With the advisability of giving the bees full sheets of foundation on economical grounds, and also to keep the rearing of drones under the bee-master's control, came foundation machines, and the plaster casts, which I first had the pleasure of seeing used in public by Mr. J. Abbott at the annual show of the British Bee-keepers' Association for 1881 at South Kensington, for which he gained the only prize given for making foundation in the presence of the judges, which he so well deserved, the ease and rapidity with which he turned out sheet after sheet being still fresh in my memory.

The casts, which are made of plaster, are held in two wood frames, which much resemble enlarged wood frames used to protect school slates, hinged together at the bottom so as to open and shut like a book, as at Fig. 1.

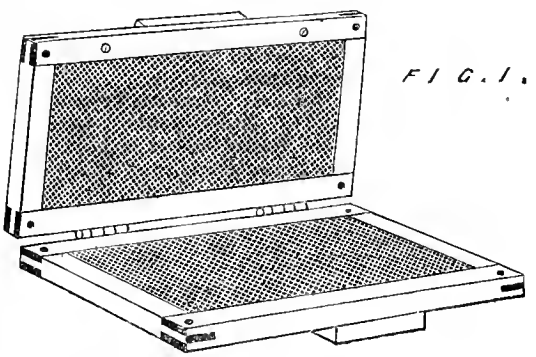


FIG. 1.

I make the frames of good, clean-grained, well-seasoned beech-wood, one-inch square, mortised and tenoned at the corners, and secured with a wood pin—glue not being suitable for anything subject to being repeatedly wet and dry. To give the plaster a better hold on the frames, I plough out a grove on the insides, precisely similar to the groove for holding the slate in the slate frames of our school days. The size of our frames of course will depend on the size of the standard of our hives, those I am describing are $15\frac{1}{2} \times 9\frac{1}{2}$ outside measurement, and are used to make sheets for the British Bee-keepers' Association's Standard bar-frame.

The hinges used to secure the frames together are made of brass to guard against rust, and are so adjusted as to

keep the frames $\frac{1}{8}$th of an inch apart at the bottom edge when closed, the two small screws in the top bar, as seen in our illustration, projecting $\frac{1}{8}$th of an inch, keeping the frames at an uniform distance, top and bottom.

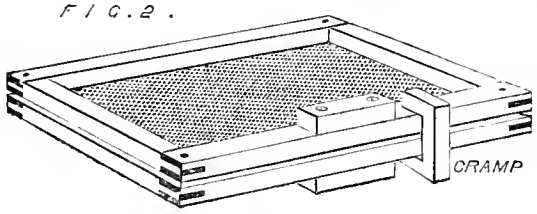
On the outsides of the two top bars are secured two pieces of wood, three inches long by one inch thick, to give good holdfast when in use.

Having made our frames, our next step is to fill them with plaster, with the foundation imprinted on each, so that they come together so exact as to form a perfect midrib, or we shall hinder our favourites instead of helping them, to say nothing of the waste of wax, &c.

Before we put our carpentering tools aside, we must get a piece of board three-fourths of an inch thick, planed perfectly true and smooth on one side, and fit it into one of our frames so as the smooth side comes flush with the inside of the frame. We drive a few French nails into the frame at the back of the board to prevent this board from falling out, but care must be taken not to fix them too tight, as we shall presently have to remove them and the board as carefully as possible.

Having procured a sheet of machine-made foundation slightly larger than our casts are to be, taking care to select a sheet with sharp walls, and as uniform in thickness as possible; if we prefer conical based cells, Dunham's will suit our purpose admirably; we lay this sheet of foundation on the frame into which the piece of board is fitted, close the frames together like a book when shut, and secure them with a make-shift cramp, Fig. 2.

FIG. 2.



Our next step is to damp the foundation with paraffin, laid on as thin and evenly as possible with a flat camel hair-brush, to prevent the plaster from sticking.

We next procure some modeller's plaster, and having mixed it fairly thin with water in a basin, we pour on the foundation sufficient to fill the frame flush with the outside, smoothing it off, and leaving it a few minutes to set. We now turn our frames over very carefully, and we have the rough side of our three-fourths of an inch board uppermost, withdraw the French nails, remove the piece of board, and we expose the other side of the sheet of foundation, which we damp with paraffin, proceeding to fill in the second frame with fluid plaster as previously described.

Having given the plaster sufficient time to harden, we remove the cramp, open the frames, remove the sheet of foundation, and we have a cast that is a facsimile of the sheet of foundation, both in shape and size of cell, and thickness of midrib, that with proper and careful use will make us one cwt. of foundation before we shall find it requisite to renew the plaster.

On economical grounds, full sheets of worker foundation Association standard size should not exceed six sheets to one lb., so if we find our casts do not make our sheets the proper thickness we can alter it slightly by adjusting the two screws on the inside of the top bar of the frame. This has the effect of making our sheets 'feather-edged,' which is not very objectionable, if not carried to too great an extent, taking care to fix the thickest edges of the sheets to the top bar of our hive frames. I need scarcely point out the difficulty of avoiding the objectionable 'feather-edge,' on account of the brass hinges necessarily being a fixture.

My first attempts to make these casts were on two stereo plates, which allowed of sheets being made to any required thickness as with a foundation machine; but, apart from the expense, the extreme care required to fix the frames while being filled with plaster so as to get them to meet mathematically exact, would, I fear, be not always available to many bee-keepers.

This was at a time when machine-made foundation was not always available, but fortunately we now have no difficulty in procuring a sheet for the purpose of renewing our casts, apart from the additional advantage of a greatly simplified process.

It is not within the scope of this paper to deal with the subject of wax-clarifying, this should have been done in the winter months, when the bees were, like careful housewives, *within their hives*. If our wax is dark in colour never mind, providing it is pure. If we wish to purchase and apply to an importer of the precious article about the time I write this, he will tell you, *Wax has gone up 30 per cent at one bound, but if you want it to give your bees I have a good 'mixture,' that will answer your purpose admirably, it is perfectly 'harmless,' a beautiful colour, and 50 per cent less in price.*

It is the straws that show the flow of the stream; these words are the words of an importer of bees-wax, in no way connected with the sale of bee-keepers' appliances, consequently not likely to know about 'harmless mixtures' for bees, unless inquired for by bee-keepers.

Bees do not object at all times to work out foundation adulterated with paraffin; but doubtless this accounts for the many cases of foundation breaking down, of which we have paraffin melting at a much lower temperature than bees' wax. I think it will be advisable for the British Bee-keepers' Association to follow in the steps of the great agricultural societies, and appoint an analyst.

Having procured our wax, we proceed to make it into foundation. If expense is no object to you, you make and improve the tin-ware trade by getting a suitable vessel made, but as I am writing for small users I find a galvanized iron bath a very good makeshift for an outer vessel; in the bottom of this I lay two pieces of a free circulation of water between the two vessels, which is requisite to prevent the wax from burning during the melting process. And now a word of caution as to the iron, about three-fourths of an inch thick; this allows size of this inner vessel: this must be sufficiently large to allow the frames and casts to be dipped in and out readily, but you will readily see the larger the size of it the greater amount of wax you will be compelled to keep in stock to make foundation. In fact, this is the only drawback to making foundation in small quantities.

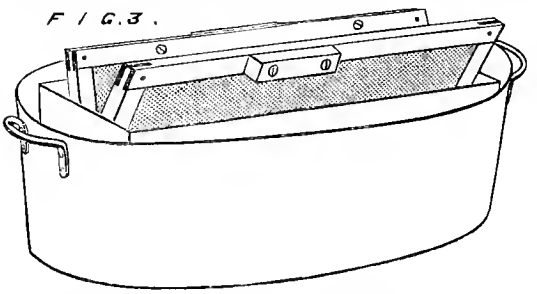
A bee-keeper a few weeks since sent twelve pounds of wax of his own production to a manufacturer, with a request to have twelve pounds' foundation made from it, and was surprised to learn it could not be done, as it took 200 lbs. of melted wax before the manufacturer could dip because of the size of his vessel.

To complete our outfit, we shall also require a good size tub nearly filled with cold water, a table or bench, a piece of thin board, the size we wish our finished sheets to be, and a sharp knife.

Our job is somewhat 'messy,' but we first cut up our wax, the smaller the quicker melted, and place into the vessel sufficient to fill it, at least four inches high, when melted. The amount of foundation we require must be our guide as to quantity, but I have named the minimum amount; we now set this vessel on the two pieces of iron in the galvanized iron bath, and pour sufficient water into the bath to fill it six or eight inches high, taking care not to spill any into the interior vessel amongst our wax; we now place the bath over a fire until the wax is melted, which will retain sufficient heat after removal from the fire, which we now do, setting it alongside our tub of cold water, &c.

We now proceed by immersing the casts and frames in

the cold water, lifting them out by the two wood lugs, we dip them slowly into the melted wax, as at Fig. 3,



holding the frames open about two inches at the top until the bottom bar of our frames is immersed about three inches in the molten wax, then close them firmly, we lift them out, and still keeping a firm hold, plunge them into the cold water, which effectually sets the wax sufficiently firm and hard for us to lay the casts open on the table, and remove the sheet of foundation. We shall find a thin sheet of wax has adhered to the outsides of our frames, this we can remelt.

Again, immersing our casts into the cold water, holding them open, we proceed to dip into the wax, repeating the process until we find we have not sufficient wax to *rise* into the casts to make perfect sheets, and with very little practice and perseverance we shall find we can turn out sheet after sheet, which only the initiated will discern from *first prize machine-made*.

We take our pile of sheets, lay them one by one on the table or bench, and trim off with the sharp knife to the size of one piece of thin board; occasionally dipping the blade into hot water will keep it free from wax. If we intend laying any by for stock a sheet of thin paper must be laid between each sheet of foundation, or the whole will become inseparable. Wax foundation should be kept in a warm, dry place, about 60° Fahr., in a tin box if possible, as bees-wax deteriorates on exposure to the air.

To keep our casts from 'bulging,' place a sheet of paper between them, and secure the frames together with a cramp, and stand them on end, like a book on a shelf, attention to this will prolong their existence indefinitely. EXPERT, *April 2nd*, 1883.

USEFUL HINTS.

WATER FOR BEES.—Bees must have access to water, without which they cannot mature their brood. Many ingenious 'fountains' have been invented or suggested for the purpose, but a simple pan of fresh water will suffice, provided the bees have something on which to stand while they drink. I saw a very sufficient arrangement in an apiary in Warwickshire. A common glazed milk-pan stood on the ground near the hives, partly filled with stones and tufts of moss, and water was filled in nearly to the top, and emptied and replenished from time to time. If a running tap and overflow pipe could be added to this, nothing more could be desired. Bees are often drowned in drinking at a running stream, or even at an open pond or tub.

BEE FLORA.—The time is passing when all seeds should be planted. Every one should note the periods of the year when the supply of bee-flora is most scanty and provide such plants as will fill the void. I have found that *Limnanthes* may be kept in successional bloom for at least twelve weeks, and it is worth growing if merely to look at it with its myriads of busy workers during 'each shining hour:' its sprays are very useful too as cut flowers. *Arabis* admits of any amount of subdivision, and I have found a large bed of it, laid down last autumn, most useful at the present season of scanty bloom. I trust all bee-keepers will recognise the importance of planting *some* hardy flowering plants near their hives. The advantage of having a feeding-ground *close at hand* in cold weather is very great, and saves many bee lives.

FEEDING.—Feeding should be kept up for at least another fortnight.—D. S., *9th May*.

ASSOCIATIONS.

BRIDGWATER SHOW.

Entries for this Show close on the 19th inst. Intending exhibitors should send in their entries on or before this date. Honey of any age is admissible, and we trust that bee-keepers (more especially those residing in Somersetshire and the adjoining counties), having honey on hand, will make for entries for this exhibition.

GLOUCESTERSHIRE.

We understand that the Rev. W. E. Burkitt, honorary secretary of the Wilts B. K. A., will give his lecture on Bees and Bee-keeping at Lechlade on May 16th; at Fairford, May 17th; and at Cirencester, May 18th. He has also been invited to lecture at Gloucester by the Educational Department of the Gloucester Sanitary Association, the date of lecture is not at present fixed, but it will probably be about May 22nd or 23rd. At each of the above places it will be Mr. Burkitt's endeavour (as at the Bee Show held last year at Cheltenham) to induce the county to form a Bee-keepers' Association. We trust Mr. Burkitt's earnest efforts may meet with encouragement from all bee-keepers, and that soon Gloucestershire will follow the example set it by Somersetshire by the establishment of a County Association.

CARMARTHENSHIRE BEE-KEEPERS' ASSOCIATION.

Our county Association, notwithstanding the short time it has been established, is now in a very flourishing condition. The number of members already exceeds 100. Mr. T. B. Blow, of Welwyn, has recently completed a series of lectures in the principal towns in the county, for which we are indebted to the generosity of the Rev. H. R. Peel and the Committee of the B. B. K. A. Our members have also been visited by Mr. Blow and thus had the benefit of his advice and assistance at their own apiaries. The tour was commenced on Friday the 13th; that day was spent in visiting members in the immediate neighbourhood of Llandilo. In the evening Mr. Blow delivered a lecture at the Town Hall, Mr. W. H. Lloyd presiding. The following day was devoted to visiting members at Llangadock, and a lecture at the Llandovery Town Hall. Major-Gen. Sir James Hills, K.C.B., who has become a most enthusiastic bee-keeper, presided and was supported by the leading gentry of the neighbourhood.

On Monday in the neighbourhood of Llansawel and Pumpsaint, were found some skeps containing from twenty to thirty pounds of honey. This is a proof of their being excellent honey districts. On Tuesday Llanegwad and Ferryside were visited. At the former place, although no lecture had been arranged, quite a large audience had assembled to meet Mr. Blow at a

member's house. He accordingly delivered an address at the Llanegwad Coffee House, the vicar, the Rev. E. Thomas, taking the chair. We were unable to find many bee-keepers at Carmarthen on the following day; but we enrolled several members who are now anxiously looking out for stocks with which to commence operations. The lecture at the Town Hall in the evening was very well attended. The Mayor, Mr. J. Jenkyn Jones, presided, and is setting a good example by commencing bee-keeping himself. Thursday and Friday were devoted to what may safely be called the most advanced bee-keeping district in Wales, namely, St. Clear's and its neighbourhood. Advanced bee-keeping was introduced to St. Clear's a few years ago by Inspector Hughes, to whom great credit is due for the trouble he has taken in instructing and assisting his neighbours in the art. The Town Hall was crowded on Friday evening, many persons coming a great distance to the lecture. Mr. J. Bagnall Evans presided. On Saturday morning Pembrey was visited, and in the evening Mr. Blow addressed a small audience at the Park Street Board school-room, Llanelly, Mr. C. W. Gaussen taking the chair. As several new members were enrolled that evening no doubt in future we shall have larger attendances.

The number of members visited during the tour was forty-one and 139 hives were examined, of which fifty-three were bar-frames. Mr. Blow considers the bees generally in very fair condition, and that he has seldom visited better honey districts than some parts of Carmarthenshire. The Rev. H. R. Peel, in some of his papers, lays particular stress upon the importance of the expert's visit to members. In our case it has been the means of doubling our number, and the subscriptions received will be more than sufficient to defray the expenses, thus adding to our funds in hand instead of reducing them. We are indebted to many gentlemen at different places for assistance in arranging the lectures, &c. The expense of the tour has also been considerably lessened by the kind hospitality with which Mr. Blow has been received throughout; and all our members are anxiously looking forward to another visit in the autumn. We are greatly obliged for the kind help we have just received from the Parent Society, and which we will endeavour to repay by becoming one of its most flourishing branches.—L. Oswald Lewis, *Hon. Sec.*

SOMERSETSHIRE BEE-KEEPERS' ASSOCIATION.

On Friday evening, April 20, the Rev. W. E. Burkitt, of Buttermere, Wilts, delivered a very interesting lecture on 'Humane and Profitable Bee-keeping' at the Town Hall, Wells. The Lord Bishop of Bath and Wells (President of the newly-formed Somersetshire Bee-keepers' Association) occupied the chair.

His Lordship, in the course of his introductory remarks, said it was a very great art to make a little go a long way. But it was not an uncommon art, because many practised it in all stations of life, and in no class was it more necessary than with the working men. As a rule, they had but small means, and there was much to do with that little. The rent had to be paid, cold days and long nights had to be provided for, themselves and children clothed, and education paid for. It was often wondered at how the working man contrived to live on such low wages, and to meet all the wants of his family. There were two ways which ought to be used simultaneously in order to make the two ends meet. One was good management and care that nothing useful was lost or thrown away: and the other was to find out some additional means of adding something to the wages. The latter was most important to the working classes, and that was one reason why he was so pleased to have the opportunity of endeavouring to help in the formation of a Bee-keepers' Association for the county of Somerset. This really put the means at the disposal of every working man to increase the income of the family. It also increased his happiness, and formed an additional interest to his daily life. He (the Bishop) had extremely strong feelings that enjoyment of some kind was a necessary ingredient in the cup of life—life could not be happy without some object of interest. He, therefore, looked upon the promotion of bee-keeping as an addition to happiness and contentment. It kept the mind pleased, and interest gathered around the home and made it the centre of pleasure and enjoyment. But whether as the means of adding to the income or increasing the pleasure, a knowledge of the subject was absolutely necessary. Bee-keeping was not profitable unless some knowledge of the subject was obtained, and it was intended to extend the knowledge of the art of bee-keeping so as to make it both a pleasure and a profit. In conclusion, his Lordship said the object was a most laudable and useful one, and if he could in any way assist in carrying it out it would be a great pleasure to him to do so.

The lecturer then proceeded to describe both the old and new apparatus used in bee-keeping. He did not recommend those who had the old-fashioned straw hives to lay out a lot of money at once in the purchase of the newer styles, but at the same time he suggested the latter should be acquired by degrees, and he showed that the value of the honey was considerably enhanced by the use of the bar-frame hives. He showed by a happy simile the utter absurdity of killing the bees for the purpose of taking the honey, and explained how this might be avoided even with the old straw hives. The lecturer was frequently applauded during his remarks, and at the conclusion he expressed himself willing to answer any questions,—an offer which was taken advantage of by several of the audience.

MALVERN BEE-KEEPERS' ASSOCIATION.

There are a number of persons in Malvern and neighbourhood who take a great interest in bee-keeping, and we are glad to find a society, by means of which they will be drawn together, has been formed. A meeting was held at the Lyttelton School-room to form a branch society in connexion with the Worcestershire Bee-keepers' Association. Dr. Fernie was in the chair, and there was a good attendance of persons interested in the keeping of bees. The following resolutions were passed unanimously, and a committee was formed with power to add to their number. Moved by Mr. W. B. Henley, and seconded by Mr. W. Paddison: 'That a Bee-keepers' Association be formed for the district of Malvern as a branch of the County Association.' Moved by Mr. Morgan, and seconded by Mr. Bartleet: 'That the subscription for membership shall be 2*s.* per annum, and for cottagers and labourers 1*s.* per annum.' Moved by Mr. W. B. Henley, and seconded by Dr. Fernie: 'That Mr. W. Paddison be secretary.' At the close of the meeting a vote of thanks was passed to Dr. Fernie for his kindness in taking the chair.

IRISH BEE-KEEPERS' ASSOCIATION.

The Annual General Meeting of the Irish Bee-Keepers' Association was held on the 25th of April, 1883, in the committee room of the Society for Prevention of Cruelty to Animals, 36 Westmoreland Street. Present, Rev. Canon Bagot (chairman), Miss Bagot, Mrs. Tottenham, Rev. G. A. Proctor, Captains L. and W. Riall, Miss Chenevix, Jas. Traynor, W. J. Bramley, J. Rosie, Thos. Smith, Henry Taylor, and E. D'Olier, Hon. Sec. (*pro tem.*)

Minutes of last Annual Meeting read and confirmed. The following propositions were passed:—That the report with list of subscribers, &c. be adopted. That the

Rev. G. Proctor, Capt. W. Riall, and Mr. J. Edmondson, be appointed scrutineers for the voting papers, electing the managing committee for 1883-4. That the President, Vice-President, and Treasurer be re-elected. That Mr. D'Olier be elected auditor. That Mr. D'Olier be appointed Hon. Sec., *pro tem.* That the following gentlemen be requested to form a deputation to request the permission of the Royal Horticultural Society to have a Bee show at the coming Rose show—Capt. Riall, Mr. D'Olier, and Mr. Edmondson. That the same gentlemen request Mr. Guinness's permission to hold same Bee show in his grounds. That the best thanks of this Association be given to the Society for Prevention of Cruelty to Animals for their kindness in allowing the members of this Association to hold their meeting in their premises. That a meeting be held to consider the advisability of having lectures on Bee Culture. That the Committee be empowered to let the tent *only* for 1*l.* without lecturer, &c. That the *British Bee Journal* be the organ of the I. B. K. A. as long as it remains under its present management. That 500 copies of the Rev. Mr. Aldridge's lecture on Bee Culture at the Dairy Show be applied for, to be distributed among the members of this Association *free*.

The result of the voting papers is as follows:—Jno. Edmondson, Rev. Canon Bagot, E. E. Davidson, Capt. L. Riall, R. Sproule, Edmund D'Olier, S. C. Gavacan, Very Rev. M. E. Holland, Rev. J. M. Aldridge, Rev. Thos. Lindsay, J. S. Tedcastle, Rev. G. Proctor, Lord Ardilaun, P. C. Warren, Hon. Rich. Bellew. That the preceding 15 gentlemen compose the committee for 1883-4.

The following six members were co-opted members of the committee at the meeting held 1st May, 1883, as being residents in or near Dublin:—W. J. Bramley, J. M. Gillies, Rev. P. Kavanagh, J. K. Rogerson, S. K. Twigg, Frank Collins.

Foreign.

FRANCE.

Our friends of the Somme department, always active and ready to promote the interests of apiculture, are preparing for great strides during the coming summer, for, it having been announced officially that several northern provinces will hold their agricultural shows at Amiens between the 5th and 14th of May next, the 'Société d'Apiculture de la Somme' is urging one and all its members to contribute as much as possible towards the bee section, which is supposed to form an important addition to these shows. Three gold, six silver, and eight bronze medals will be placed at the disposal of the jury for honey and wax exhibits only. The Préfet of the Somme department has shown the appreciation of the services rendered to apiculture by this useful society by contributing 100 francs to its funds on behalf of the Conseil Général of the department. Monsieur Patte-Caron has been appointed manager to the apiary of this Society.

It is generally anticipated that the forthcoming exhibition under the auspices of the 'Société d'Apiculture et d'Insectologique' will prove a marked success. Applications for space and particulars should be addressed to the secretary of the said Society, Rue Monge, 67, Paris. The list will close on the 15th of June next, and all exhibits should be sent in not later than the 25th of the same month. Steps are being taken by the Board of the Society to secure from the railway companies a reduction of 50 per cent from their ordinary tariffs upon exhibits going or returning from the exhibition. The *récompenses*, as prizes are technically called in this country, will be numerous, for, besides the first, second, and third class medals of the Society, the Ministry of Agriculture will contribute 'Abeilles d'Honneur' (Bees of Honour) diplomas of merit, gold, silver, and bronze medals.

From Bordeaux it is reported that Mons. G. Gregory was to commence his practical lessons of the season, on the 5th of this month at 8 A.M., and to be continued weekly every Thursday.

ITALY.

The cold easterly winds which have prevailed all over Europe until lately, have been felt in all their severity throughout Italy; and although no estimate can as yet be accurately made of the damage done to apiculture in the form of chilled brood, it is feared that in most parts, particularly in the central provinces, where bees had already made a fair start, it must be considerable, although not so much as it would have been the case if it had occurred two or three weeks later. In most of the provinces, especially in Upper Italy, the easterly winds had been preceded by an unusually heavy fall of snow, averaging about a yard deep. There is no doubt, however, that vegetation generally, but bee-pasturage in particular, will be considerably retarded this year in consequence of the recent low temperature.

The Rev. Achille Cadolini has been elected vice-president for the Central Association.

GERMANY.

The Emperor of Germany has bestowed the Crown of IV. order upon Mr. Charles Zwilling of Mundolsheim, as a proof of his imperial Majesty's appreciation of the valuable services rendered by Mr. Zwilling to bee-keeping as editor and secretary for the 'Société d'Apiculture' of Alsace and Lorraine.

Foul Brood.—The German Reichstag has enacted a law which is to be enforced on and from July 1, 1883, inflicting a fine of 100 marks, or imprisonment for one month, on any one who (1) gives away or sells colonies, hives, frames, or combs, infected with foul brood; (2) who exposes knowingly, on his stand or elsewhere, infected colonies, hives, frames, or combs; (3) who does not remove out of reach of bees, or disinfect completely all such infected hives, frames, or combs, on discovery.

SWITZERLAND.

The Société Romande d'Apiculture has of late directed special attention to the organization of an apicultural library. The collection consists at present of only about 36 publications, 8 of which are the work of native authors, 2 French, Canadian, 8 German, 4 English (United States) and 2 Italians. As soon as Mr. Bertrand can issue his catalogue, the circulation of books among members of the Association will commence.

A Bee Exhibition is advertised to take place shortly at Zurich, and the Association is soliciting subscriptions for a special tent to be erected for honey exhibits.

Mr. Joseph Castellaz writes to the *Bulletin d'Apiculture* to the effect that he has succeeded in preserving old combs through the winter free from the wax-moth, by keeping them hermetically closed up in boxes or casks, into which he places a piece of camphor wrapped up in blotting-paper in order to prevent its rapid evaporation. He was led to make experiments in this direction from the well-known fact that velvets, furs, &c., are kept free from moth in like manner.

The editor of the *Bulletin* reports, that in the course of his recent visit to Paris he was simply astonished at the high prices exacted by retail dealers for Swiss honey, particularly if in comb, the latter being marked at from 2 francs 50 cents to 3 francs per half kilo, these figures representing hardly 50 per cent of what the Swiss bee-keepers get from Paris traders. The writer looks upon the above facts as a great hindrance to honey consumption, and earnestly advises bee-keepers to create for themselves what Americans would call a 'home trade,' thereby reaping a large portion of the exorbitant profits now going into the pockets of the Paris middleman.

Correspondence.

*** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.'*

All Correspondence must bear the name and address of the writer, not necessarily for publication, but as a guarantee of good faith.

DISTRICT COMMITTEES.

I hope that the Hon. Secretaries of County Associations will see the force of the Suggestions made for the improvement of their organization, more especially those regarding the formation of district committees under the district secretaries, and the establishment of village bee Parliaments for the discussion of bee topics by the villagers themselves, under the presidency of their parish representatives, who would make known the wants, wishes, and opinions of their constituents at the monthly meetings of the district committees, and as time progresses be elected by the villagers themselves. Under such a system every villager who is a bee-keeper must be reached; and many a one, who at present does not dream of bee-keeping, will be induced by force of example or precept to become one. Under such a system, too, we shall form a model republic under our excellent Lady President, whose annual re-election to that office alone hinders me from calling our constitution a limited female monarchy.—M.A. Oxon.

READING-ROOM.

The question of obtaining a Reading-room in London in which bee-keepers may meet was brought forward again at the last Quarterly Meeting of the B. B. K. A.; but with little time to discuss it the *pros* and *cons* could not be considered.

We were told that such a room, in combination with a shop in which members' honey could be offered for public sale, might be obtained within a short distance of Charing Cross, by taking a house for 130*l.* and letting off the upper floors, so reducing the rent to 70*l.* Upon this basis, setting the cost for the first year as follows:—

Rent	£70
Rates and taxes	20
Fittings and furniture ..	50
Lighting and firing	15
Care-taker and wages of shop-keeper (man and wife)	105
The total cost for first year would be	£260

And afterwards, say, 220*l.*

On the other side, to meet this expense, I see no difficulty. First, for use of such a room there would, I apprehend, be little doubt that each County Association could (on the average, one with another) furnish, say, ten subscribers at 10*s.* 6*d.* each. These to be individual subscriptions, not giving any right to the Associations, nor involving any liability to them. This would produce, say, 150*l.* Then the honey depôt, selling, say, 50,000 lbs. (which is surely a very low estimate), with a royalty or commission of one penny per pound, would produce 200*l.*—together 350*l.*, to meet the cost of 220*l.*—showing a profit of 130*l.* and upwards. After the first year, if it were found that these figures were realised, the subscription could be reduced to 5*s.*, or even 2*s.* 6*d.* per member, and probably without reducing the total amount received for subscriptions, as the numbers may be expected largely to increase.

Assuming that this, or something like it, could be carried out, we should have (1) a reading-room, where country and other members could meet, could address their letters, leave parcels, &c., and where the books of the library of the B. B. K. A., now too numerous for their present shelves, would be kept and consulted; (2) a committee-room available at all hours for the meetings of the Central Association; (3) a shop and depôt for members' honey; (4) a depôt for hives and implements, in lieu of the space in the South Kensington Museum (which is now hardly of any use to members); (5) permanent head-quarters for sale of *Journal*, books, diagrams, &c., &c., &c.

If the secretaries of County Associations would ascertain the wishes of their respective members, and send to the Head Secretary a list of those willing to subscribe to the above terms; and if honey-producers would give some idea of the quantity of honey they would send up for sale at the central depôt, the question would soon be in a state for solution. I, for one, look upon the matter most hopefully.—S., *Member of a County Association, and a would-be Subscriber.*

THE BONA FIDE COTTAGER.

I think most of those who were present at the discussion on the 25th ult. came away with the impression that the *bonâ fide* one was as far from being defined as ever. But, although so difficult to define in words, any one of us, I am sure, visiting a cottager and learning his surroundings, the wages he receives, his style of living, &c., could judge at once whether he was a proper subject to be admitted to the cottager class. I would therefore suggest that each one should be judged on his own merits.

Now in the case of County Associations, and still more so in that of the B. B. K. A., it is impossible for the Secretary to know personally the status of every applicant to exhibit or subscribe in the Cottagers' Class; I would therefore suggest that every such applicant should furnish the secretary with the name of the local clergyman (or dissenting minister) to whom application might be made for information. This having been obtained, the consideration thereof may safely be left to the secretary. I rose to propose this at the meeting, but failed to 'catch the Speaker's eye.'—F. Lyon.

NAMES OF BEE FLOWERS.

It seems to me that the value of the *Bee Journal* would be greatly enhanced if the common names by which flowers are known were given as well as the botanical names. Of course there are a great many bee-keepers who do not require this assistance, and who know plants by their botanical names better than they do by the common ones; but there are a still larger number who are very much puzzled with scientific names who would have no difficulty in recognising the flowers if the common names were given. It must not be forgotten that most County Associations circulate the *Bee Journal* amongst their cottage members; and if it is to do good to these, when it is possible plain English names should be given, as there are not many who can understand 'Frenchy,' as they say in Sussex of any language not English. As an example, I give you an extract from a letter I have received from a cottage member of our Sussex Association: 'I will now ask, both for myself and bee-keeping neighbours, that if they would give the name of bee flowers that we as cottagers know them by, it would be a great help to us, then we might be able to get them. I copied the names of some from March *Journal*, thinking to get the seed, so when in Brighton last Thursday, I took the paper with names on to Kil-

mister, North Street, when he told me one was common coltsfoot, and another a wild flower that grows about here which we call ladies' smock. Now, sir, we don't want either of these in our gardens, as there's plenty grows wild, and please excuse my troubling you about it; but, thinking you will understand what I mean and perhaps be able to let the editor know, we should like plain names that we can understand.' I am sure if this wish were complied with, it would give the cottagers a greater interest in the *Journal* and tend to the advancement of bee-keeping amongst them.—THOS. WM. COWAN, *Comptons Lea, Horsham, 5th May*, 1883.

QUEEN-REARING.

In Mr. Cowan's admirable article on this subject in the *Bee Journal* of May 1, there is one point I must take exception to: and as discussion on such subjects is likely to be of public use, I am sure he will forgive my criticism. He advises the removal of the best queen in the apiary to induce her bees to raise queen-cells from her eggs, and adds that the queen should be given to another colony having an inferior one, or that she can be utilised in making a swarm.

Having recently suffered great mortification in the loss of my best Ligurian queen by adopting this plan, I feel that the experience gained need not be repeated by every one, especially when there is a simpler and safer method already. The plan I would advocate is to avoid any handling whatever of pet queens, but simply to borrow a frame of her eggs and larvæ and give it to a stock whose queen you do not mind sacrificing, having previously taken the precaution to remove all young brood, eggs, &c., which may with advantage be given to a third stock requiring help. And let me here warn novices against 'shaking' bees from combs wanted for such a purpose.

Mr. Cowan is, I think, very likely right in being prejudiced against queens made of larvæ instead of fresh eggs, and I own to a strong prejudice against 'shaking' (as so often practised in the poultry trade) before setting eggs for queens. The eggs are very likely to get displaced and the larvæ destroyed. For the same reason (at a later period) the young queen-grubs are liable to be separated from their comfortable bed of royal jelly.

Let me here add that I think it would be an excellent plan to put some of the approved drone-brood in the nucleus prepared for the queen, as by this means we are more likely to secure that speedy fertilisation of the queen which every one so much desires. The drones would thus be apprised of the queen's flight, and she would be less likely to wander afield, and cross with undesirable mates. My gardener watched a new queen last year march in and out of her hive several times attended by six of her brothers 'like a coach with six horses.'—E. H. BELLAIRS.

BLOW'S ANGLO-CYPRIAN HIVE.

How true the saying that 'There is nothing new under the sun,' and how often do we find two or three individuals working out the same idea quite independently of each other. On opening the last number of the *Journal* at page 311 at once recognised an old acquaintance, for at Glasgow, at the Caledonian Society's show last year, a similar hive was exhibited, the frames being kept apart by distance-pieces instead of metal ends. The same principle, though in different forms, has cropped up from time to time for the last fifteen years. There was Major Nunn's hive with the triangular frame; then we had Mr. Wyatt's hive, also with a triangular frame, brought out in 1874, and described on page 159, Vol. I. of the *Bee Journal;* then, a few years later, we had a hive with circular frames invented by a Lincolnshire gentleman, and I believe in the possession of Mr. R. R. Godfrey, the Secretary of the Lincolnshire Association. It was claimed for all these hives that the bees wintered well in them, and perhaps those who have used them may be induced to give us their experience of them. To me there appear several objections to them. I cannot admit that the ordinary moveable-comb hive as now used is a bad contrivance for wintering. If bees are crowded in so as to completely fill the space occupied by them, and are properly prepared for winter, safe wintering is more certain in it in this climate than in any hive with fixed combs. It certainly contrasts favourably with the ordinary box hive, as those who have used the latter very well remember the difficulty experienced in wintering bees in such boxes. I believe the clay cylinders used in Cyprus and the East are generally stacked up in clamps, so that when they once get heated they retain the heat for a considerable time; but were one to place one of those cylinders by itself the bees would hardly survive a winter in such a climate as ours.

Now as to the objections. First as to the shape of the frame and its position. The frame being square and resting on the two corners would be apt to spread from the weight of honey and brood in the frame, and when we wished to operate we should find the frames jammed in between the runners. It is the weakest position in which such a frame could be placed. The lowest point of the combs could not be used for breeding purposes, except in the warmest weather, because the heat of the hive rises to the top. In this respect the cylinders would have the advantage because the circular form of the combs conforms more closely to the shape of the cluster of bees.

In manipulating a much larger surface on the tops of the frames would be exposed than in an ordinary hive. If the bottom sides rest on the sides of the hive there would be a danger in crushing bees in replacing the frames, and they would be propolised so as to fix them to the sides of the hive. The refuse of the hive would also accumulate in the V-shape bottom. And, lastly, a special extractor would have to be made for use with these frames. These are some of the disadvantages which presented themselves to me when I saw the hive first; and I do not think the advantages of being able to put on more sections, or even the better appearance of the hive, will counterbalance them. This, however, remains to be proved, and I should be glad to know if Mr. Blow has tried the hive and with what results.

If this catches the eye of the gentleman who exhibited a similar hive in Glasgow last year, perhaps he also will favour us with his experience. Mr. Godfrey might likewise tell us how his bees have done in the circular framed hive he has. The hive has certainly a pleasing appearance. —THOS. WM. COWAN, *Comptons Lea, Horsham.*

THE ANGLO-CYPRIAN HIVE.

Allow me in your columns to congratulate Mr. Blow upon his happy idea, or rather the carrying of it out in the Anglo-Cyprian. I have not the least doubt that the principle is sound, and that Mr. Blow's will be 'the hive of the future.' I have had the idea of the angular top in my mind for a long time past, but had not the wit to put it into shape. I am commencing experimenting with Mr. Blow's hive, and will let you know the results in due time.—G. S.

QUEENS: DIRECT INTRODUCTION.

I beg to report three successful cases (all I have tried) of the above. In the first a valuable Ligurian queen had a very weak colony, she was exchanged on her frame with bees with a strong black stock, and is doing well. In the other two cases, small nuclei received from Simmins of Brighton, on Standard frames of comb. The bees were shaken out to hive with my sized frames,

fed, and after one day's interval introduced to strong black stocks: no smoke, but everything was done as quietly and quickly as possible, and the next day, on examination, the queens were laying.—JOHN MARTEN, *Dunkirk, Faversham.*

CONDENSED MILK.

(Reply to E. B.)

In reply to your correspondent 'E. B.', I believe I mixed about two or three pints of thin syrup with a can of Swiss milk. It is very readily taken by the bees, but I have not given any lately, or I don't consider it necessary after the supply of natural pollen commences.

I have often given eggs in syrup instead of milk, but I much prefer the latter: the bees like it better, it is cleaner in use, and no waste.—G. S.

ANGLO-CYPRIAN HIVE.—In the illustration of the Anglo-Cyprian hive, the engraver has made a mistake: he has failed to show the usual space between the bottom bars and the body of the hive.

CORRECTIONS.—Page 6, col. 2, 4 lines from bottom, *for* 'vicar of St. Austell,' *read* 'vicar of St. Goran, near St. Austell.'

Solution of Salicylic Acid.—Page 18, col. 1, 7 lines from bottom, *for* 'spoonful,' *read* 'tea-spoonful.'

Echoes from the Hives.

Sheffield, May 9th.—Since the 5th of March the weather has been anything but favourable for bees. To judge what the cold was in March, I may remark that all the exposed wallflower-trees were killed, also large quantities of Arabis alpinus and holly-trees, which latter have not been injured by frost since the winter of 1860-1. Where bees were in fair condition and properly managed the losses are *nil*. April opened fair, fine, warm and bright; and while the wind remained in the east—to the 9th,—fair progress was made, for although the nights were cold, sometimes frosty, the days were warm and bright, owing, in my opinion, to there being nothing green on the face of the earth to absorb any of the sun's heat. Since then it has been chiefly dull and wet. I may here remark that when the weather is dull, no matter how warm and fine, or what quantities of flowers there may be, the bees never seem to gather any honey: my opinion is, the yield of honey depends entirely upon the amount of sunshine. Snow fell heavily April 23 and 24, May 4 and 5. Bees are mostly well and strong, and will give a good account when some bright weather comes. Pears and cherry-trees are not in bloom here yet.—JOHN HEWITT.

East Derbyshire, May 9th.—Weather still bitterly cold and wet. We have had very few fine days, and but one really warm. Bees are healthy, but require constant feeding, and breed very slowly.—G. S.

North Leicestershire.—Weather was generally unfavourable here until May-day, which was a glorious day for bees. A spell of cold, windy weather set in on the 2nd, and culminated on the 5th in a fall of eight inches of snow. The 6th was a fair day, and the only one on which bees have been able to work since the 1st. Stocks improving slowly.—E. B.

Horsham, Comptons Lea.—The month of March was remarkable for the small amount of rain which fell, and for the prevalence of north-easterly winds. It was a most trying month, and in many hives where breeding had been commenced much brood became chilled, for the simple reason that the bees were obliged to forsake it, and cluster more compactly to keep themselves warm. Rain fell on nine days, and the total amount in the month was ·56 of an inch. The largest quantity fell on the 20th, viz., ·28. During the same month in 1882 rain fell on fourteen days, the total quantity being 1·54 inches, and the largest quantity on one day, ·59 inch on the 1st. The highest temperature in the shade was 57°·0 on the 31st, and the lowest 22°·4 on the night of the 24th. The sun made its appearance on seventeen days. The prevailing wind was N.E. The greater part of the month was wintry and cold, there being snow on the 24th, 26th, and 27th. There was a strong gale of wind from the N.E. on the 22nd. Altogether the month was unfavourable for bees,—the sun tempting them out only to become chilled by the piercing winds.—THOS. WM. COWAN.

Somerset, Castle Cary.—Bee-keeping has been practised to a very limited extent in this part of England, but thanks to the disinterested efforts of a few lovers of the insect in neighbouring places, a change for the better is taking place, and there is every hope that the future will find a large number of cottagers and others availing themselves of the advantages of this interesting pursuit. Mr. J. G. Knight, a local bee-keeper, recently gave a lecture to the Young Men's Society on 'Bees,' which caused a good deal of interest and many inquiries. By special request, Mr. Knight repeated his lecture to a larger audience on March 28. The utmost interest was excited, and several persons present expressed their intention to become bee-keepers. Mr. Knight commenced by referring to the notions of the ancients respecting bees, and gave considerable attention to the folk-lore of the subject. By means of various descriptions of hives, diagrams, comb, queen and other cells, he explained many matters that otherwise would have been difficult. He gave a decided affirmative answer to the question, 'Is it worth while to keep bees?' A hearty vote of thanks was given to Mr. Knight.

Wimbledon.—Bees have wintered fairly well, though several hives have been lost. Drones are hatching out fast, but natural swarming will be late.—G. W.

Devonshire.—April has been a trying month for bees. With a slight exception, the wind has been easterly most of the time. My apiary was put into winter quarrers last October. My hives have all double walls, and the method adopted was as follows: the combs were reduced to as many as the bees could cover, in some cases seven, and in others only four, leaving about two square feet of sealed food, winter passages having been cut as recommended by Mr. Cowan: a dummy on either side, and the space between that and the outside walls filled with chaff; on the top of the frames was placed a piece of calico, and above that about 4 inches of chaff, free circulation being provided for above that. Nothing more was done to them, as I was away all the winter: and on my return to Devon, on the 4th April, I found that ten sections without an exception in excellent condition, free from any particle of damp, and brood in all stages; a few were running short of provisions, and so stimulative feeding was at once resorted to. I have examined several apiaries in the neighbourhood, and in every case the bees had had only just enough supplies for their winter consumption. Drones are being hatched out, and near Ivybridge they appeared on the 30th March. With regard to the weather reports allow me, Mr. Editor, to throw out a suggestion: as they will be incomplete by their being obliged to be made up by the 22nd of each month, it would be more interesting if the past month's returns were sent in by the 9th of each month. During the month of March, the rainfall was below the average: east winds prevailed, and it was very cold with some sharp frosts. Rain fell on nine days only, the total amount being 1·22 inches. The largest quantity fell on the 20th, viz. ·37. During the same month in 1882 rain fell on seventeen days, the total amount being 1·73 inches. In 1881 we had 3·92 inches: and in 1883, 3·12 inches. The rain-gauge is 389 feet above sea-level. It would be more interesting if those who

send rain reports would state the height above the sea that their gauges are situated. As I am writing the 23rd of April the wind is blowing very cold, and the weather generally is more like that of winter. Vegetation is in consequence retarded; and the apple-blossoms will not be out for at least a fortnight.—W. N. Griffin, *Hon. Sec. D. B. K. A.*

Reading, April 21st.—April has brought us beautiful weather; bees have worked well every day except three. Breeding, which was stopped during March, has been carried on vigorously. They take in large quantities of water. There was not much to gather from during the first week except crocuses, which the bad weather had kept from blooming until then. But now they have plum, pear, almond, gooseberry, arabis, wallflower, &c. I notice they do not work on the gooseberries so much as they have done other years.—H. F.

Waltham, Melton Mowbray, April 24th.—On the 10th colder weather set in, and up to the 24th bees have not averaged an hour's work daily. On the 23rd, snow, equal to ·51 in. of rain fell, but it disappeared on the following day. Stocks are certainly, in many cases, weaker than in February, and there are complaints abroad of 'spring dwindling.'—Edwin Ball.

Dudley, April 21.—Since writing my last echo there has been considerable improvement in the weather which came only just in time to save any stocks in skeps kept on the let-alone principle. Up to about the 2nd it was too cold for the bees to come out, but after that, up to the 14th, the weather was more like summer; but cold rough winds then set in which stopped the production of honey and pollen. Found many stocks in straw skeps starved and these alive through breeding on the verge of starvation, living from hand to mouth. Bar-frame hives in most cases in much better condition and breeding freely. I had a fearful visitation of foul brood last year, and the disease has broken out again, generated in brood chilled by the late frost and cold, showing how difficult it is to stamp out when once imported.—C. Brown, *Worc. B. K. A.*

Cairnie by Keith, N.B., May 7th.—The more frequent issue of the *Journal* is looked upon in this quarter as a very great improvement. I am sorry that I cannot give a favourable report of the weather. With the exception of a day now and then, bees are fairly shut up. Amongst bee-keepers who give little attention to feeding, &c., the loss this season will be very great. The weather is too cold to examine hives at present. P.S.—I have heard from several bee-masters in this county (Aberdeenshire), and their report is good. All that is wanted is favourable weather.—A. Cockburn.

Leslie, Fife, May 9th.—My last echo was in end of March, and since then we have had many severe difficulties to contend with, and at present the situation is not very hopeful. The weather has been and still continues remarkably free from rain, most of the moisture we have had coming as snow and hail, only about one third of the usual average of moisture falling in March and April. The temperature has been very low, and bitterly cold; north and east winds have blown uninterruptedly for two months. On the morning of the 6th of May we had 10° frost, and yesterday several heavy showers of snow and hail. Rainfall for March, 1·2 inches; April, 1·6 inches. Natural food is extremely scarce and the only chance of saving stocks is by continued feeding. Hives thus treated are increasing slowly in population, but the cold weather prevents much being done in spreading brood, so as to quicken the production of bees, and the strength of hives is much behind compared with this time last year. The middle of June is considered here as the usual time of swarming, a swarm in May being looked on as a wonder sufficiently great to be chronicled in the local press. We had one such last year; but unless we get a change to milder weather very soon, there is little likelihood of its being repeated this season.—J.L.

Bray, Ireland, April 30.—Bees are more backward and have less brood, even with constant feeding, than for any of the last three years. The weather in March was so bad that many hives with plenty of bees and stores had again stopped breeding, and contained no brood further advanced than the egg on the 1st April, though I heard of one bee-keeper in a sheltered situation having spread the brood in February, and the hives having come safely through the severe frost, ten to twelve degrees at night, which we had in March, and now being very strong.—E. D'Olier.

County Cork.—Early portion of month nice balmy spring weather, and up to the middle of month the heat was intense, with no rain; but since then it has become more natural. It has been a good month for bees, as there were large quantities of wild flowers, the bloom of furze being very profuse, and no need for artificial pollen; and I believe that honey is being gathered also as stores have not diminished quickly in my hives, and they have all large patches of brood since March. The month has seldom been quite free from some east or north-east wind, but the heat of the sun prevented it from being much felt. I know of six hives that passed through the winter with only one quilt of flannel and eleven frames, and they all came out fairly strong; and one of them had a crate of sections left on all winter as well. Not having got chaff in time, I covered my ten hives with six to eight layers of sacking of an open texture, and also some of the stuff that comes round tea-chests. I had not a damp quilt or a mouldy comb, and bees strong, and large stores.'—J. Crosnie Smith.

Ireland, Newtownards.—The season here has been very cold since March 1st with strong north and north-east winds. It is very hard work building up this spring owing to severe weather. My hives reduced from nine to seven owing to balling to death of queens. Hope the season will turn in favourable before long, as swarming will be very late here this season. Weather and other circumstances have been such as to dull the most enthusiastic bee-keeper. Still, we must hold out, as every cloud is said to have its silver lining.—Wm. Ditty.

Great Brunswick Street, Dublin.—I am glad to see bee-keeping advancing so much about Dublin, several persons whom I know are now advanced bee-keepers (myself among the rest) who knew as little about bees as bees did about them twelve months ago; this is mainly through the lectures delivered by the Irish Bee-keepers' Association. The weather here was beautiful for bees for the last fortnight; lots of brood in hives, but no store. The apple-trees are in bloom very early, and a quantity of honey will thus be lost to the weak stocks. I was glad to see the new series of the *Bee Journal* for sale along with other bee appliances in the windows of Messrs. Edmondson, Dame Street, as many people would buy the *Journal* by single numbers who would not, or could not become subscribers. I quite agree with what is said of the want of articles on the straw skep in the new edition of the *Manual*.—J. P. Allen.

Queries and Replies.

Query No. 583.—*Finding the Queen.*—I often find it impossible to identify the queen-bee when lifting up and inspecting the frames covered with bees from a hive. Is there any rule to guide one as to where to look for her with most likelihood of finding her; or is there any sign of the place on which she may be known?

Reply to Query No. 583.—The duty of the queen is to lay eggs, and in prosecution of that duty she may be called to all parts of the hive; but, generally, if one of the central brood-combs is raised without creating any disturbance there is a good chance of finding her at

once; if not there, the combs must be examined one by one, and placed on the comb-rack. It is quite possible that with a populous hive the queen, especially if she be young, may still escape the eye. Look over the combs again as you restore them to their places; and if not found then it would be desirable to close the hive, let them get quieted, and then try again. It would much facilitate the discovery of the queen if a small portion of red paint were placed on her thorax.

Query No. 584.—1. *Long Sections.*—Seeing in your March number that the Americans seem to think long sections the best, and not knowing how to get one pound sections in a Woodbury frame, I thought that perhaps the enclosed drawing might do, and before starting on them I thought I would write and get your opinion of it. It is for the longitudinal system, as I am making all my hives to hold about eighteen Abbott's Woodbury frames. One great advantage is that you can pull up any one section without disturbing the frame. I have drawn one lb. and two lb. sections in it. When the sections are in it is all solid, and when out the divider at the back keeps it the right width; it can also have hinges at the bottom if necessary. 2. *Tilting up hives.*—Do hives filled with Abbott's pattern frames do better if tipped up at the back slightly?—M'K.

Reply to Query No. 584.—1. The objection to long sections is that full sheets of foundation cannot be safely used in the perpendicular form. The foundation for supers being so thin and frangible there would be great danger lest the incumbent weight of the bees would cause it to fall. 2. The hives ought to be perfectly level if sheets of comb are to be used, as their being tipped up would cause the foundation to get out of the perpendicular. If, however, only narrow guides are used, it would be better if the ends of the frames were slightly tilted.

Query No. 585.—*Old Queen.*—In the beginning of March one of my hives looked a little weak, but still there were some eggs hatching and the queen appeared to be all right. It has not been thriving or busy since, and has been two or three times attacked by the other bees, which I, however, stopped by lessening the size of the entrance. On opening the hive to-day it would appear that the queen has stopped laying, as there are no eggs in any of the combs, and only a few bees here and there sealed over, but which on opening one appears to be all right. What has stopped the queen from laying? The hive is quite strong and warm enough. Ought I to take away the queen and put in a sheet of eggs from another hive to form a new queen, as I suppose drones will be out before she is hatched? They are so strong that I am loth to join them with another hive.—A. H. T.

Reply to Query No. 585.—The queen is probably old and failing. A short supply of food, or cold frosty nights, may however have stopped breeding. If the breeding has not freely recommenced your best plan is to change the queen. English queens may be had at a low price now. Failing this we advise you to give a frame or two of brood from other hives, that can well spare it, and to remove the old queen; but in the latter case it will be doubtful if you reap any harvest from the colony this season.

Query No. 586.—*Temperature for hatching Sealed Brood.*—I should be glad to know what temperature is necessary in hatching sealed brood artificially.—E. D'Olier, *Bray, Ireland.*

Reply to Query No. 586.—Sealed brood may be hatched artificially in a temperature of from 95° to 100° Fahrenheit.

Query No. 587.—*Reduction of Stores.*—I am distressed about my only hive of Ligurians, it was and is a very strong one, my strongest in fact, and from which I took no honey. But on yesterday I noticed bees leaving the hive and falling on the ground quite unable to rise, with their bodies very much distended. Few tried to fly and nearly all just rolled off the alighting-board on the ground, where they remained; and yet so mild was the night that many, though exposed to rain, were alive to-day at 2 o'clock. The hive is beautifully dry and the combs quite clean—the bees looking most healthy. I think nothing less than a thousand could have been lost; but six combs are quite covered still. I fed the hive at once with syrup, but would be glad of your advice in the matter.— John J. Smyth.

Reply to Query No. 587.—Your bees will probably have recovered under the treatment of feeding with syrup, before this meets your eye. From your description there is little doubt that starvation was the cause of the bees dying. Evidently the breeding was carried on so rapidly that the stores were consumed. Bright, sunny days, with easterly winds, tempted the bees in want of food to forage, and from this cause alone many stocks have perished. Your hive appears to be still populous, and by a copious and regular feeding—which must be continued until warm weather comes—your prolific queen will soon repopulate the hive.

Query No. 588.—Will you kindly inform me (1) the value of Ligurian bees over blacks for honey-collecting purposes? (2) Which is the more profitable way of harvesting honey, in sections or by extracting?—G. B.

Reply to Query No. 588. — (1) Ligurians were introduced into Germany by Dzierzon in the year 1853, and soon after to this country and America, and therefore there has been ample time to arrive at a fair estimation of the respective merits of Ligurians and blacks. We may say that it is the general (we cannot say universal) opinion that the superiority of the Ligurians consists in their swarming earlier, in being more industrious and better honey-gatherers, in being more gentle and yet more courageous in self-defence, and also in the greater beauty of their markings and their attractiveness to the eye. (2) Having ready-made combs in the body of the hive, and by extracting every three or four days, you would be able to get a much larger amount of honey during the harvest than by the bees storing it in sections. Extracted honey often requires curing or ripening. This is done by subjecting it to a heat of about 100° Fahr. until it has acquired a proper consistency. Sectional honey is in a more perfect condition, is neater, cleaner, and more saleable.

Query No. 589.—Herewith I send you two specimens each of two new sorts of bees I have lately noticed in my garden. The two smaller are about a quarter the size of an ordinary bee, very quick in their movements and carry very large loads of pollen. Do you know them? or are they a new variety? I have never noticed these before this year. My neighbours have also noticed them as something new. They come in great quantities on the cherries. Will you kindly give your opinion in the next number of the *Bee Journal?* I think you will find the small variety are without stings.—F. G. Fothergill, *Wallington, Surrey.*

Reply to Query No. 589.—The specimens forwarded belong to the family *Andrenidæ* (a branch of the *Apidæ*); they do not represent two distinct varieties, as our correspondent supposes, but are the male and female of the *Andrena fulva.* The male, the small black bee, is so dissimilar in appearance to the bright golden-tinted female, that entomologists were at one time very incredulous as to their relationship, and it was only by positive observation of them in their burrows that it was satisfactorily established. They appear in great numbers about the time of the apple-blossoms. They are frequently seen in Hampstead Heath. After a time, through exposure to the atmosphere, the fulvous pubescence gets rubbed off, and the female's colour fades into a pale yellow, while that of the male changes into a dull grey. They burrow in the earth, their tunnels varying from five to six inches in depth. If ever the idea of the Bee-club is realised, a

collection of specimens of British bees will not be an uninteresting feature.

QUERY No. 590.—*Honey from Lime Trees.*—In a book on trees, written by the Misses Kirby, and published by Cassell, Petter, and Galpin, it is stated that there is a forest of limes in Lithuania, and that the honey got from them is of so delicate a whiteness that it is sold for more than the ordinary kind, and that an imitation is 'made by bleaching the common honey in the open air in a frost.' Now, I have always understood that the honey got from limes is dark in colour. Am I right or not in my impression?—R. J. P., *Wellington, Salop.*

REPLY TO QUERY No. 590.—Honey from lime-trees is of a grey-greenish hue; certainly it is not dark.

QUERY No. 591.—1. In Mr. Cowan's *Guide* he says bee-keepers should always have spare queens by them. Does he mean in nuclei? 2. Also, in operation on the first stock in nucleus, is it requisite to cage the old queen in nucleus?—F. W. ECCLES, *Wakefield.*

REPLY TO QUERY No. 591.—1. Yes. 2. In first stocking a nucleus there would be no queen to cage. When the queen has been raised in a nucleus and you wish it built up to a full stock, if you give frames of brood, there is no need to cage the queen; but if bees are added as well it is better to do so for a short time if the queen is a very choice one, although in most instances when bees are thus united they are not inclined to fight or destroy the queen.

QUERY No. 592.—1. I have been asked several times what method I recommend for doubling: whether putting a stock (in a bar-frame hive) bodily, minus the bees, upon another stock, or making a single-walled box, similar to a temporary hive, to hold half-dozen frames, and placing it on the top of the frames as a super? By the former method there is a distance of 1½ inches or more between the top of the bottom set of frames and the bottom of the top set; by the latter method the distance mentioned can be made ¼ inch, and the box to accommodate a smaller number of frames. I recommend the latter method. Which would you recommend? and why? 2. What was the earliest date at which foundation was worked out satisfactorily last year?—C. W. N., *Somersham.*

REPLY TO QUERY No. 592.—1. *Doubling.*—The first plan is the only one that can be worked successfully. The hives, frames, &c., must exactly correspond, and the top-bars of the frames should be *flush* with the walls of the hives, there will thus be only a ¼ inch space between the upper and lower frames—all frames being ¼ inch from the floor-board. In the latter plan the population would not be large enough to enable you to extract, at least to any great extent, and the upper box would be used as a super only. (See Cowan's *British Bee-keeper's Guide* on 'Doubling,' page 46.) 2. The thin foundation in section-boxes was freely drawn out and filled last year from the first week in May in our own apiary, but the season was exceptionally early and fine. A good deal depends on locality, whether early or late, and situation. Brood-comb from foundation will be readily worked in strong and crowded stocks as honey begins to come in freely. Stocks fed freely on sugar syrup will also work out foundation whenever the heat and population of the hive admit.

QUERY No. 593.—1. *Removing pegs in skeps.*—I have some straw skeps with wooden pegs running down, three inches, into them from the hole in the top. I now want to take them out for feeding. Will it wrench the centre comb off the sides of the skep to do this, or in any way injure the bees? The peg was put in to stop the hole in the top, and with the additional idea of giving the bees something to *start on.*

2. *Wild Swarm.*—I have a wild swarm of bees in a garden wall (stone); please say if there is any way of using supers against the wall? The wall is about 15 inches through, and the swarm 10 feet from the ground.

3. *Artificial Swarming.*—My bees, both in the straw skeps and in the bar-frame hives, are now very busy carrying in pollen, and have had patches of sealed brood for the last fortnight. Please say when I can with safety artificially swarm them; and also when I can begin to increase the size of the hives—now five frames—by adding frames of comb-foundation?—GOONHILLY.

P.S.—They have been fed every day for the last fortnight.

REPLY TO QUERY No. 593.—1. If you give the peg a screwing motion you will be able to remove it without disturbing the combs, provided they are fixed to the sides of skep. It will not injure the bees in any way, and any injury to the combs would be quickly repaired.

2. It depends entirely on what space the bees have in the cavity as to whether they will store in boxes. If the cavity is very large nothing would induce the bees to store outside; but if they were crowded they might do so, and of course the application of the boxes would depend upon the position. Much the better way would be to smoke the bees, make an opening in the stonework, cut out the combs, and transfer them to a frame-hive.

3. The proper time to artificially swarm is when the hives are crowded with bees and there is an abundance of drones for fertilising the queens when these are reared. If you are feeding and the hive is crowded with bees and brood on all the combs, you can give them a frame of foundation; but be sure that there are enough bees in the hive to cover all the brood, or more harm would be done than by leaving alone should the weather become cold again. If there are plenty of bees there is no danger in building up now. Continue the gentle stimulative feeding till bees collect honey.

QUERY No. 594.—1. *Adding an Eke.*—I have just begun bee-keeping by buying a stock in an old straw skep. It is rather a small skep, but the combs are full to the floor-board, and it seems very full of bees. On fine days they carry in pollen very well. Should I be doing right in adding about 3 inches more room at bottom to enable the bees to lengthen the combs, or will it be best to leave the hive as it is and let them swarm, and then transfer? 2. *Number of Frames.*—How many frames should I allow the swarm when I put it in an Abbott's Combination hive? 3. *Painting Hives.*—Is it well to paint the hives inside as well as out, and the floor-boards also? A friend of mine says he has tried this and finds that in winter the perspiration given out by the bees runs down the sides and out of the hive instead of soaking into the wood. However, this seems a departure from the usual custom and I should like to have your advice before trying it. 4. *Feeding and Dysentery.*—Since I have had this stock I have been slow feeding them with Mr. Cowan's No. 2 recipe, and I have noticed the last day or two a little excrement from the bees on the alighting board. Would this liquid food produce dysentery, and if so what means must I adopt to cure it? 5. *Twin Hives.*—Do you recommend twin hives? 6. *Colour of Hives.*—What is the best colour to paint hives? 7. *Delaying Swarming.*—If I put on a small super when the blossom comes out, would it tend to delay the swarm coming forth?—ALLAN E. D. COOPER.

REPLY TO QUERY No. 594.—1. As your skep is 'rather a small one,' you will do well, if it is at the present time full of bees and brood, to add an eke of 3 inches deep and keep up the gentle feeding, you will thus get a larger population and a larger swarm, but of course it will delay the swarm some few weeks. 2. The number of frames depends upon the size of the swarm. The day after hiving the swarm remove all frames not covered by the bees, and close up the divider, adding frames filled with foundation as those you first give become worked out. 3. It is not recommended to paint hives inside. If sufficient ventilation by porous quilts is given, no moisture should condense on the hive-sides.

4. Feeding at this season is not likely to produce dysentery. If you fear its existence add solution of salicylic acid to the food, as recommended in your book. 5. Twin hives tend to conserve the heat of the bees in winter, and thus lessen consumption of food. 6. Quite a matter of taste. When many stand in a row it is as well to vary the colours. 7. Yes, more particularly if you give an eke as well.—Ed.

Query No. 595.—(1.) In uniting two stocks is it necessary to take one queen away when I have no fancy to one, more than the other?

(2.) Could I safely introduce a Ligurian queen to a black stock in the following manner: I have two skeps, which we will call No. 1 and No. 2. Driving out the No. 1 and put their hive as a super on No. 2, leaving it there for six or seven days, then the grubs would be too old to be converted into queens, then taking the lower one No. 2 about ten yards off, and leaving No. 1 on their stand, immediately putting the queen over the feed-hole in a little box (wired), leaving her there for a day or two, then let her walk in.

(3). Could I prevent second swarms from skeps, in putting queen excluder at the entrance, for a day or two, when I hear the piping?—John Berry.

Reply to Query No. 595.—(1.) No.

(2.) Yes; if you can make sure of removing the queen with No. 2 hive, otherwise the bees would not accept the queen. We should prefer to introduce her by putting the queen-cage between the combs, and either the Raynor or Abbott queen-cage would do for this purpose.

(3.) You might prevent swarming, but you would run the risk of smothering the bees. At swarming-time, the bees are so excited that they would rush at the entrance and probably block it up, unless you made the entrance very large. If the entrance were large enough to allow the bees free exit through the excluder zinc the queen might also get through, as an unimpregnated queen is generally small enough to pass through the perforations.

Query No. 596.—Will you tell me, referring to your reply to Query No. 500, page 279, how can we tell which is a young or old queen? I should like to have only young ones, but do not know how to distinguish them.—G. A. R., *Chester*.

Reply to Query No. 596.—Young queens are more active in their motions, and more sprightly than old ones. There is no certain mark, however, by which they may be known. The old queen always leads off the first swarm, and so, by keeping the dates of their first and after swarms, most bee-keepers know the ages of their queens, especially if they are kept under occasional observation. An old queen may be superseded at any time during the summer months, it is well, therefore, to mark the queens, which is often done by squaring the tip of the right wing of those of one year, and the left wing of those of the following year. A very small quantity only should be removed, so as to interfere but little with the power of flight.

NOTICES TO CORRESPONDENTS & INQUIRERS.

E. Porter.—*Destroying Insects in Pollen.*—The cause of the presence of insects in pollen is its putrefied condition. The pollen, being of no service to the bees, should be discarded altogether, by being shaken or blown out of the comb. If the comb is then sprayed with a weak solution of salicylic acid, it would be cleansed from the insects.

G. Walker.—*Bees in India.*—The Government of India, in the Revenue and Agricultural Department, has recently addressed a circular to all local governments and administrations, calling on them to gather all the information available in their districts on bee-keeping. The result has been that considerable interest has been aroused, and some valuable information has been elicited. Several of the communications have appeared in the *Asian*; and on pp. 175, 176 of Vol. X. of the *Journal* will be found portions of the correspondence. We have further matter in type, which will be inserted as soon as we can find opportunity. We think it would be safer to transfer the advanced practice of British bee-culture to India than to venture to take out bees which there might be much difficulty in conveying safely and in acclimatising.

W. E. B., *The Cairns, Ghaleo.—Strengthening a weak stock.*—If practicable, we advise you to give the weak colony two or three frames of hatching-brood covered with bees from other hives, on the evening of a fine day when bees have ceased flying, having previously caged the queen of the weak stock, and being very careful not to remove the queen together with the brood-combs and bees. Then close the hive and remove it to a distance of a couple of miles, and on the following morning release the queen. If you prefer to place your weak stock on the stand of a strong one, and the latter on the stand of the former, the queens must be caged in both hives, or encasement, and perhaps death, will ensue, and some fighting is sure to take place.

Sidney Roebuck, *Kelso.—Packing and removing hives to a distance.*—Each comb should be securely tied in the frame, and the bottom being supported by a strip of wood the frames should be rigidly fixed in the hive and the whole covered with perforated zinc raised one fourth of an inch above the frames. The hives should then be placed on coils of hay-band, so that the motion of the train or cart should cause as little jar as possible.

* * *Our earlier publication on account of the Whitsun holidays obliges us to postpone several letters and some Echoes and Replies, also Reviews of New Books.—Mr. Ditty's letter will be inserted in our next, Mr. Todd's paper now being concluded.*

SHOWS AND BEE TENT ENGAGEMENTS FOR MAY, JUNE, AND JULY.

June 19, 20, 21.—Worcestershire Agricultural Show.

June 20, 21.—Agricultural Show at Truro.

July 5, 6, 7, & 9.—British Bee-keepers' Association at Knightsbridge.

July 11, 12.—Lincolnshire. At Gainsborough, in connexion with the Lincolnshire Agricultural Society. Stephen Upton, Secretary.

July 16 to 20.—Royal Agricultural Show at York.

July 24.—Agricultural Show at St. Ives.

July 25, 26.—Leicestershire Agricultural Show at Melton.

July 26.—Waltham Cross Horticultural Show.

July 29.—Horticultural Show at Rockingham.

BERKSHIRE ASSOCIATION.

June 19 & 20.—Newbury (Marlborough and Pewsey Vale Agricultural Association).

BUCKINGHAMSHIRE ASSOCIATION.

July 5.—Aylesbury Flower Show.

July 26.—Winslow Flower Show.

July 31.—Buckingham Flower Show.

DEVON AND EXETER ASSOCIATION.

May 16, 17, 18.—Bideford, in conjunction with the Devon Agricultural Society.

July 30.—Escot Park, Ottery St. Mary.

ESSEX ASSOCIATION.

June 13 & 14.—Essex Agricultural Society at Colchester.
June 28.—Brentwood.
July 13.—Audley End.
July 18.—Maldon.

HANTS AND ISLE OF WIGHT ASSOCIATION.

June 26, 27, 28, 29.—In the Show Grounds of the Royal Counties Agricultural Society at Winchester.

HERTS ASSOCIATION.

July 26.—Waltham Cross Cottage Garden Show

KENT ASSOCIATION.

June 30.—West Kent Horticultural Show, Chislehurst.
July 3.—Rochester and Chatham Horticultural Show at Rochester.
July 7.—Eltham Horticultural Show.
July 11 & 12.—Blackheath Flower Show.
July 24.—Ash next Sandwich.
July 25.—Ashford.

NORTHAMPTONSHIRE ASSOCIATION.

July 10.—Uppingham Horticultural Show.
July 17.—Duston Horticultural Show.
July 19.—Rockingham Horticultural Show.
July 19.—Weston Favel Horticultural Show.
July 26.—Dallington Horticultural Show.

SUSSEX ASSOCIATION.

July 25.—Dane Hill, near Uckfield.
July 25.—Worth, near Crawley.

For August fixtures see last number.

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THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 123. Vol. XI.] JUNE 1, 1883. [Published Fortnightly.]

Editorial, Notices, &c.

JUNE.

We wish that all those who are interested in the progress of bee-keeping could obtain a copy of the Collected Reports of the British and Affiliated County Associations, such as is supplied to all County Secretaries in the early part of the year as soon as possible after the general meeting of the British B. K. A. in the month of February. So many useful hints and suggestions are thrown out by County secretaries in their reports, and so much may be learnt by the comparison of one report with another, as well as by comparing the last volume with the preceding one, that we regret exceedingly that the circulation of this little work is so limited. Beyond the secretaries of the County Association and a few of the members of the British Committee, we doubt whether it is ever seen by bee-keepers. The desire to keep down the expenses of printing, and the unwillingness to impose an additional burden on the County Associations by asking for a larger supply of their reports, is the cause of this limited circulation; but we believe that many would gladly possess themselves of the volume if an opportunity were afforded them of purchasing it. We would, therefore, suggest that all those who desire to obtain a comprehensive view of the state of English bee-keeping during each past year should send in their names as subscribers to the publication of the Collected Reports to the Assistant Secretary of the British Bee-keepers' Association and receive a copy annually. Until this can be done, we can only advise members of County Associations to borrow the volume from their County Secretary, though we are well aware that the book is of such value to County Secretaries that they may very well be chary of lending it, unless they can assure themselves that it will be safely and speedily returned.

LEANDRI'S SOLAR WAX-EXTRACTOR.

It has always been admitted, that the melting down of old and superfluous combs was, even under the most favourable circumstances, the most tedious, if not also the most unpleasant operation connected with the work of the bee-keeper. In fact, it is no exaggeration to assert that it is to these difficulties, in a great measure, are due the large quantities of combs which are supposed to be discarded annually, particularly among the cottagers' class, who have not at their command any of the hitherto known utensils for reducing their few combs into wax without causing considerable inconvenience to their household. Consequently, even only from this particular point of view, it becomes evident that the recent appearance among us of an auxiliary invention tending to facilitate the extraction of wax from old combs by a clean, effectual, and at the same time a much more economical process than any of those hitherto used, was sure to be highly appreciated by all parties interested in the advancement and prosperity of apiculture, seeing that it will assuredly raise the production of this all-important article of commerce with a collateral increase of profit to the bee-keeper. These considerations, among others, account, no doubt, for the favourable impression which the recent discovery of the *Sceratrice Leandri*, or, in other words, Leandri's solar wax-extractor, has produced throughout the European Continent.

Dr. Dubini, of Milan, whose name is fast becoming a household word among Continental bee-keepers in general, and Italians in particular, owing to his unremitting efforts to improve and simplify apicultural implements, was not long in convincing himself that Mr. Leandri's invention contained all the necessary elements for the formation of another most valuable addition to the scientific department of apiculture, and that the solar wax-extractor, as embodied in his principle, however modified its shape may become in the course of years, was undoubtedly one calculated to fill a prominent place in the future history of bee-keeping. It could not but follow, therefore, that Dr. Dubini should at once direct his attention to this invention, and give to it the full benefit of his well-known scientific knowledge. Having determined what alterations at first sight seemed to him to be advisable, he at once had a few distributed among the most noted of Continental bee-masters, whose verdict is looked forward with general interest.

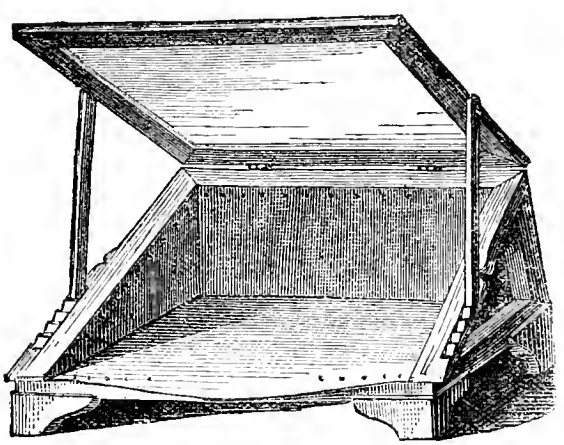
Nor were his *confrères* on this side of the Channel overlooked; in fact, it is only an act of courtesy due to Dr. Dubini to point out that in the month of July last he pointed out to the London Hon. Representative of the Central Bee Association of

Italy the advisability of taking such steps as might be deemed necessary in order to bring this discovery under the notice of British apiculturists.

For the rest, Mr. Giuseppe Leandri's apparatus is so simple in principle, and yet so effective, that the wonder is that it was not thought of before. We say advisedly *before*, because it does not even lack the peculiarity noted in numerous important discoveries of having been brought to light simultaneously by two or more inventors unknown to each other, for, according to Professor Angelo Puglia, another utensil, almost identical with Leandri's, was seen by him at an exhibition held in Palermo, Sicily, at about the same time.

The basis from which the power for melting wax in these machines is derived are the rays of the sun descending upon a pane of glass placed at a certain distance from a metallic sheet, between which the finely-broken up combs intended to be operated upon by exposing the extractor in a direct line with the sun are placed.

In the case of the one seen at Palermo by Professor Puglia, instead of being furnished with only one pane of glass as in Leandri's, it was constructed with two, slightly convex, thus forming, it is believed, a more powerful lens. The comparative advantage or disadvantage of this arrangement is one which our scientific friends will undoubtedly hasten to settle satisfactorily. In the meantime, suffice it to record that the main basis of a new and sound principle for extracting wax by means of the sun has been, thanks to the above-named inventors, added to our scientific knowledge. Time and experience will soon determine what



the most convenient shape of the new apparatus is to be. At present, however, the one adopted forcibly reminds one of a small garden-frame with glass on.—John Camaschella.

NUCLEUS SWARMING.

The month of May is generally considered the month for swarms, but this year, owing to the protracted cold weather there have been very few natural swarms. The advanced bee-keeper, however, has the advantage over his old-fashioned neighbour in that, he is able to get his bees into a forward state and not wait for natural swarming, but can do it artificially. There are various ways of making artificial swarms, but there is one which is very simple and yet very little understood. I allude to nucleus swarming. Every one knows the uncertainty of natural swarming, and has often found that bees clustering outside the hive are apparently ready to swarm; but owing to unfavourable weather, or some other cause, they do not swarm. During all this time they are in an unsettled state, and frequently do not swarm at all. Should the swarm issue the mother hive is left queenless, and is some weeks before it is naturally supplied with a laying queen. This is a great loss to the bee-keeper, and can be avoided by swarming artificially. The best time to make an artificial swarm is when the hive is in a condition for swarming naturally and is crowded with bees.

In a former article I gave instructions for 'Rearing Queens,' and supposing we have a number of nuclei with laying queens ready these will be now available for making our swarms. We proceed in the following way. Examine one of the nucleus hives and cage the queen on one of the combs. Remove the division-boards, place the combs containing bees and brood in the centre of the hive, and fill up with frames of empty comb or comb foundation. Remove the stock from which the swarm is to be taken to the stand occupied by the nucleus and place the nucleus where the stock stood. Thus the old bees from the old stock returning to their former stand enter the nucleus, while the bees from the nucleus and the young bees remaining in the old stock will take care of the brood until they are increased in numbers by the rapidly-hatching bees. In about thirty-six hours the queen in the nucleus may be liberated. A fine day should be selected for transposing the hives, when a large number of bees are flying, otherwise if the nucleus appears deficient in numbers it should be strengthened by inserting some frames of hatching brood from the parent or other hives. If the queen is not caged we run the risk of losing her, because if the supply of forage has been temporarily checked, the bees returning to the hive will not be filled with honey, and would attack the queen and probably destroy her. If the nights are cold the bees should only be allowed as many combs as they can conveniently crowd upon, contracting the space by the division-boards. As soon as the combs are built out spread the brood gradually until the hive is filled. In this manner bees only have to heat the space they occupy to work.

If honey is coming in abundantly, it is possible to do without caging the queen, and thus gain the thirty-six hours; but this is risky, and should not be attempted with a valuable queen. This is by far the best system of swarming, as the queen is matured and fertilised before the swarming is performed. There are no queenless parts, and the labour of the hive is carried on with rapidity only observable in prosperous hives having a young fertile queen. The desire to swarm naturally is checked, and much time (which to the bee-keeper means honey) is saved. It is frequently safe to make another swarm from the same hive if the object of the bee-keeper is increase of stocks. By this process the difficulties experienced with other systems are overcome by a process both easy and gradual, and one that, if better understood, would be more generally adopted.—Thos. Wm. Cowan, *Comptons Lea, Horsham.*

QUEEN REARING.

In the last number of *Bee Journal*, Mr. Bellairs takes exception to my method of rearing queens by the removal of the queen, and recommends inserting a frame of her eggs and larvæ into another stock, whose queen you do not mind sacrificing. Now this method will do very well if we are not very particular as to the quality of our queens: but after trying this and almost every other plan of queen-rearing, I find that the best queens are invariably raised in the mother hive. It must be borne in mind that the hive is stimulated and contains a large population of young bees, whose best qualities we wish to perpetuate; and I think they are much more likely to be the better nurses of the larvæ destined for queens than those in an inferior stock would be. If we examine a strong and vigorous colony, we shall find the larvæ fed much more liberally than in one not so strong, because of the enormous number of nurse-bees in the hive available for this purpose. As the superiority of the queens depends in a large measure upon the abundance of food supplied them, it stands to reason that a colony capable of supplying this abundance of food is the one which is the most likely to produce the best queens. The reason I prefer queens commenced from eggs instead of larvæ, is, because those larvæ intended for queens as soon as they emerge from the egg are fed liberally from the first, whereas the larvæ intended for workers are not fed so liberally. I am sorry that Mr. Bellairs was so unfortunate with his Ligurian queen, but surely that is no reason why we should give up queen-introduction. Most bee-keepers have at some time or other had a like misfortune, but as queen-introduction is now better understood than it used to be, if certain precautions are taken, safe introduction is the rule and not the exception.

Mr. Bellairs is right in warning novices against shaking bees from combs containing queen-cells as the grubs are likely to be injured, and therefore brushing the bees off is preferable. We can generally insure the drones flying by feeding the stock containing them with warm syrup on the second and three following days after the queen has emerged from the cell. Of course, if the weather be unfavourable so that the queen has not the chance of flying, the feeding should be continued until she has been fertilised. The only objection to putting the drone-brood in the nucleus and allowing it to hatch there, is that when the drones and queen fly out the commotion created causes most of the other bees to follow as a swarm and nearly desert their brood. This happened with two of my nuclei last season, therefore is not to be recommended as a reliable plan.—Thos. W. Cowan, *Comptons Lea, Horsham.*

BUCKWHEAT.

(*Polygonum fagopyrum.*)

[H. V. E. writes, 'Would you oblige with some information with regard to the culture of buckwheat, relative to its advantage as a prolonger of the honey-harvest, viz. time of sowing to flower end of July, width of drill apart, manure, and also value of crop, and if easily harvested, &c.?']

Though buckwheat has been well known to bee-keepers on the Continent and in the United States of America, it has been cultivated in England more for pheasants than for bees. In Germany buckwheat is highly valued as a crop, especially for waste lands and poor soils. It gives an abundant harvest, and requires but little attention and not much manure. Forty bushels or more per acre may be expected from it, weighing from 46 to 48 lbs. per bushel. In the United States thin cakes are made of it. It is very nutritious; it contains about 10 per cent of gluten and 52 per cent of starch, besides 6 per cent of gum and sugar. It is extensively used for fattening cattle, and poultry are very fond of it. As green fodder, the herbage is said to be more nutritious than clover. It has a narcotic effect on sheep. Mr. W. Carr, writing on 'Pasturage for Bees' in 1877, says of buckwheat:—

'It should be sown from May to July, broadcast, using about four pecks per acre. It succeeds the best on a dry, rich, sandy loam. It flowers in seven or eight weeks after sowing, and in some seasons it yields an immense quantity of honey; some of the German writers say, "One acre of buckwheat will yield fourteen pounds of honey per day, for a considerable time;" but the honey is of a very inferior quality both in taste and colour. Bees only work on it in the morning; and when it is out in full bloom there is scarcely a bee to be found working on any other flower until about ten o'clock on bright days. On cloudy days I have seen them working in swarms on buckwheat until eleven or twelve o'clock, but in the afternoon only a few stray bees are seen working on it. Buckwheat keeps the bees breeding until frost cuts it down, and the bees go into winter quarters, with the hives filled with young bees, and these are the only bees that survive the spring. Buckwheat is a very valuable crop, as in addition to the very large amount of honey it yields, the seeds are used to make the black bread in France, and to feed all kinds of farm-stock, poultry, &c.; and if deeply ploughed under when it is in bloom it will rapidly enrich the soil.'

Dr. Dzierzon says of it:—

'In the stubble of winter grain, buckwheat might be sown, whereby ample forage would be secured to the bees late in the season, and a remunerating crop of grain garnered besides. This plant—growing so rapidly and maturing so soon, so productive in favourable seasons, and so well adapted to cleanse the land—certainly deserves more attention from farmers than it receives; and its more frequent and general culture would greatly enhance the profits of bee-keeping. Its long-continued and frequently-renewed blossoms yield honey so abundantly, that a populous colony may easily collect fifty pounds in two weeks if the weather is favourable.'

In the summer of 1880, Mr. Cowan was induced to make a trial of buckwheat as a bee-food. Writing in September of that year, he says, 'I must speak well of buckwheat. I sowed about an acre of it on trial, and the result was that the bees stored a great quantity of honey from it. They worked upon it during the earlier part of the day in immense numbers.' In a recent communication from the same gentleman, he says:—

'We generally make the first sowing at end of May or beginning of June; the second, the middle of June; the third, the beginning of July; the fourth, in the middle of July. It begins to flower six weeks from sowing, and produces honey in the forenoon. It requires the same sort of soil as cereals, and the richer it is the better the grain. We use the grain for chickens and, ground up, for pigs. It should be cut just before it is quite ripe, or much of the grain drops out. It does not always yield honey, but when it does the bees get large quantities of rather dark but very delicious honey. By sowing at different times you get a succession of bloom. We sow sometimes in August, but generally as manure to plough into the ground.'

Langstroth says that 'the blossoms of buckwheat often furnish late in the season a valuable bee-food. It is, however, uncertain in its honey-yielding qualities, as in some years hardly a bee will be seen in large fields of it.'

When bees visit buckwheat they seem to preserve their strength much longer; partly because their visits, although frequent, are continued for a few hours of the day only, partly because they are able to hover comfortably above the blossoms, their wings not coming in contact with them.*

Dr. Dzierzon notes a curious phenomenon connected with bees working on buckwheat. He says that bees

* Dzierzon's *Rational Bee-keeping*, p. 21.

lose the power of flying when the sky becomes overclouded, falling down in numbers in front of the hives and in other places; but as soon as the sun shines and the temperature becomes warmer, they rise immediately and fly briskly into their hives.*

In America the seed is usually sown broadcast over the land, which has been ploughed in autumn or early spring and well harrowed. About a bushel and a half of seed is required when sown broadcast, but a bushel is sufficient if drilled with a machine. In the latter case it should not be sown in narrower drills than one foot apart, but two feet is recommended for the succeeding crop, as the wider intervals can be properly cultivated.

It should not be sown before the middle of May, as the slightest frost is injurious. The silver buckwheat is the best, it being very productive—one pound of seed has produced one peck. There are about 1500 seeds to an ounce.—G. H.

USEFUL HINTS.

The Season.—Bees generally are backward this season, except those that have received careful attention. We still hear of losses by starvation during the inclement weather a fortnight since, but the last ten days have been a time to cheer our hearts and energize our pets.

Increasing Stocks.—Any of our readers that wish to increase their stocks may do so now by artificial swarming, as described in the various bee-books and leaflets, being careful to select their strongest stocks only, which should contain either drones or drone-brood, or better still, queen-cells, or it would be preferable to delay the swarming until they do. An adverse change in the weather need not deter you, as you can feed up even if the bees cannot gather honey, and they will have built out their combs in readiness for the next bright spell.

Feeding Swarms.—Do not neglect to feed swarms, either natural or artificial, for the first few days, whatever may be the state of the weather; it will amply repay you, and if in bar-frame hives crowd them on to as few frames as possible. This is most important; beginners are especially apt to give too much room.

Straight Combs.—About the second or third day examine your swarms, and if they are not building straight combs you can straighten them; but you will scarcely find this requisite if you confine your bees so that they cover both sides of the comb-foundation equally. We may add, set your hives level on their stands; use full sheets of foundation, as swarms build drone-comb largely, and always add a fresh frame in centre of brood-nest, as, when added on the outside, the bees cluster strongest on the inside and so build a crooked, 'sagged' comb.

Hiving Swarms.—Natural swarms sometimes choose awkward places to cluster on. If a stout arm of a large tree be chosen, get some one to strike it a sharp, heavy blow while you hold an empty skep as closely as possibly under the cluster. If rather out of reach set the skep lightly on a bright hay-fork (a rusty one will be difficult to withdraw). You will find one blow will be sufficient to dislodge them. If necessary to sweep them into the skep, use a duck or goose wing. A brush irritates them terribly, and a spoon is liable to break many a tiny leg. We find a wing most useful to clear frames from bees, shaking is rather dangerous to tender combs, and objectionable to combs containing brood and queen-cells. Hold the frame by one corner in your left hand, in a moment the bees will cluster on the bottom corner, and two or three quiet careful strokes with your wing will clear every bee.

Superseding 'played-out' Queens.—Queen-cells from your best queen may be utilised to supersede any inferior queens you may have in any of your hives, either by hatching and fertilising in nuclei, or by destroying the inferior queen and inserting one of the cells about twelve hours after: this kind of work requires a certain amount of skill and attention to ensure success. The chief point is to master the theory before commencing, and then go carefully on step by step. 'To the brave heart nothing is difficult.'

Uniting Stocks.—Weak stocks should no longer be nursed and caudled, but united to others in readiness for the honey harvest. Be careful to contract the opening of hives containing driven stocks, and unless well supplied with stores, feed them gently; the comparatively few bees that remain will require all their energies to nurse the brood, keep up temperature, rear queens, and probably keep all the drones in your apiary, as drones generally prefer a queenless hive for their home.

Feeding.—Carefully watch the weather, and if the bees cannot gather, do not neglect to feed for a single day, as any stock allowed to approach a state of need is irreparably ruined *for profit* for this season.

Shading Hives.—Hives should be shaded from the fierce rays of the sun, especially thin single-wall hives, or you will probably find your foundation break down, especially if made with adulterated wax: many cases of suffocation arise through foundation being insecurely fixed. If you find an outside sheet with no brood getting filled with store, extract the store and insert the frame in centre of brood-nest, and if necessary, feed to replace store extracted. There is not much danger of over-feeding now in the height of the breeding season, unless given unwisely in excess.

Be Ready.—Get your supers in readiness and procure your extractor, if you think of doing so, at once. Manufacturers do their very best for all their customers, but you cannot expect them to send hives, extractors, supers, and foundation by telephone in answer to your telegram. Remember this is the busy month of the bee-keeper, catch time well by the forelock, and have everything ready for any emergency.

Swarm-Boxes.—Having been requested to give instructions as to making swarm-boxes, the following may be useful to others besides our correspondent. Make swarm-box out of ½-in. by 9 in. boards about 15 in. long, and 9 in. wide and 9 in. deep: bore four or five 2-in. holes in sides, and two in ends, and two or three in top, tack over them some coarse perforated zinc; when the bees are in, the box can be lifted on to bottom board, and fastened by tacking bits of perforated zinc to the bottom of box and edge of bottom board, as they are more easily removed to get swarm out than if the bottom were nailed right on.

Arrangements of Transit of Bees and Queens by rail and post.—In such swarm-boxes as described in preceding paragraph and in skeps properly secured by cheese-cloth, no obstacle is offered by any of the railway Companies in conveying them. We believe that the South-Western Railway Company requires from the sender 'a permit.' The Post-Office object to convey 'living insects;' queens are therefore generally sent by rail: they are sometimes sent by post, but it is at the risk of the party to whom they are consigned.

Bee-Farming.—As supplementary to our reply to Query No. 608, we are glad to note that large apiaries are being established in Hampshire, Dorsetshire, Wilts, and Devon. We have been favoured, also, with the following extract from a letter from Mr. W. Raitt, Blairgowrie:—'Were I to go in for a "bee-farm" I'd go to Co. Waterford, neighbourhood of Clonmel (vale of

* Dzierzon's *Rational Bee-keeping*, p. 279.

honey). In all my wanderings I never saw such a paradise for bees; clover, lime, heather, and on to untold masses of ivy, and laurustinus, and other early winter forage. A mild climate; steamboat to England, Scotland, &c.'

Registering the Age of Queens.—Many of the queries which have been forwarded to us during the last month have reference to hives having aged and worn-out queens,—queens which ought to have been superseded long before they reached their present unhappy condition. It is very desirable that bee-keepers should have attached to each hive a register stating the age of the queen, the condition of the colony, and the date of the last examination.

Utility of Old Combs.—Frames of comb, even if several years old, when clean and free from moth, should be utilised for swarms. It is not generally known that bees winter better, and are less liable to attacks of dysentery, on old combs than on new. A swarm placed upon combs may be supered at once, and will begin to store in sections immediately, while one, which has its home to furnish, will give but little, if any, surplus the first year.

Coming Bee Shows.—We desire to direct the attention of our readers to the schedule of prizes (to be found in our advertising columns) of the show of bees, honey, and hives, to be held at Gainsborough, Lincolnshire, in connexion with the Lincolnshire Agricultural Society; and also to that of the Cornwall Bee-Keepers' Association to be held at Tremorvah, Truro. We trust that these shows may receive support not only from the bee-keepers in their immediate neighbourhoods, but from the country at large.

Butt's New Bee-feeder.—This feeder is on the same principle as Neighbour's well-known tin bee-feeder. It is manufactured by Mr. E. J. Butt, of Barnstaple. It is made of white stone china. Bees come up through a hole in the crown of the hive, and pass through a corresponding hole raised in the centre of the trough. The sides of the raised centre part of the feeder are ribbed to help the bees passing from the hive to the feeder, and to prevent their slipping into the liquid on the other side. A close-fitting cap made of the same material and glass top covers the raised centre, thereby preventing any bees getting drowned, and also the loss of heat. The bottom of the feeder slopes slightly towards the centre so that all the syrup may be utilised. A cover to fit the top completes it. Being made of white ware it can be more easily cleaned than either zinc or tin, and keeps the food sweeter and fresher, and cannot rust. This feeder has been extensively tried by bee-keepers in the West of England, who have pronounced it a great improvement on those in ordinary use. As a cleanly, safe, and handy feeder, we can confidently recommend it to all bee-keepers.

BEES AND FLOWERS.

The importance of providing early and suitable flowers for bees has been made more than ever evident during this spring season chequered by wide ranges of temperature and cruel storms of a most wintry character, when sunshine should have prevailed. Long flights during the fitful gleams of brightness in the sky could not be taken by the bees; and wherever a good pasturage of arabis and wallflower was at hand, bees were not slow to avail themselves of the coveted and wholesome food afforded by these flowers. Aubrietia græca, which blossoms just after arabis, is only a degree less useful. Arabis should be divided after blooming, and replanted, if desirable to increase the stock of this plant; and wallflowers, if not already sown, should be freely scattered at once and subsequently transplanted. The early Dutch turnips, the roots of which were left in the ground, have bloomed very freely, and taken bees from all other flowers, except maple, which seems singularly attractive to bees. Apple and pear blossom since its expansion has been useful to the honey gatherer, and currants and gooseberry flowers earlier in the month were industriously investigated. The raspberry affords another inconspicuous but most attractive flower to bees, but this is yet in store. The value of these fruits to bees may suggest to bee-keepers the advisability of multiplying each kind whenever possible. There is great room for an extension of our orchards and fruit-gardens, and the allotment vegetable ground for cottagers should be the first step to an allotment of fruit-growing compartments. Limnanthes is just beginning to bloom; but I am satisfied that there are yet plants to be detected of equal value, and a large experimental garden of flowers likely to be useful as honey-producing plants will, I hope, enable me to give bee-keepers some useful hints before the end of the year. A clover from Persia with the scent of orange-blossoms seems one of the most promising plants.—W. Ingram, *Belvoir*.

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

Discussion on the Rev. H. R. Peel's Paper, 'Who *is* a bonâ fide Cottager?'

The Chairman (the Rev. C. R. Sowell) thanked Mr. Peel for his most interesting paper, which, besides being full of humour, contained good practical remarks. He invited the company freely to discuss the subject. It was one which had come before him in his own parish this year, but he thought there were those present who had a better acquaintance with it than himself, and he would, therefore, not take up their time with any observations at present.

Mr. Blow said he knew most of the exhibitors in the cottagers' class mentioned by Mr. Peel to be *bonâ fide* cottagers. He had recently been in company with the Honorary Secretary of the Carnarvonshire Association in Wales on an extended tour, where they had visited the apiaries of several cottagers. Some of the latter wished to join the Association, but there arose a difficulty as to whether they ought to be considered cottagers. Although their dwellings could certainly not be dignified by any other name than cottages, still he was informed that each one of these persons was worth from 400*l.* to 500*l.* He believed that the 'cottager' in North Wales was worth much more money than the 'cottager' in any part of the United Kingdom. He was really a small farmer, sometimes keeping two or three cows. He (the speaker) had recommended that the names of the applicants should be taken if they desired to be called cottagers, but the Secretary of the local Association would not consent to this without the advice of his Committee. In England men in a similar position, that is, small holders cultivating a few acres of land, would scarcely like to be called cottagers. Possibly the rate of subscription had something to do with the matter. No doubt they objected to pay the increased subscription of 5*s.* for the higher class, when they could get into the lower by the payment of 2*s.* 6*d.* He was of opinion that each district must decide for itself the *bonâ fide* cottager. He thought the labourer had not come sufficiently to the front in the matter of bee-keeping. The best way to advance this would be to multiply associations all over the country. The visit of the expert was always of a transitory nature. The cottager was generally a man who could not take in a great deal at a time, and the consequence was that half the information imparted to him by the expert was lost. If there were a local secretary near at hand, his advice could always be sought even in the smallest matters. He (the

speaker) believed in gradually instructing the cottager, first of all, in the old-fashioned systems. If he were well grounded in this he would soon advance in knowledge, and come to understand the value of the bar-framed hive, extractor, &c. When in Carnarvonshire he (the speaker) found there had been in existence several years in that county what was called a bee club, consisting of forty or fifty members. When the Carnarvonshire Association was started this Bee Club was rather an impediment, the members of the club being unwilling to join the Association. A lady of influence in the district had for the last seven or eight years been the mainspring of this club, the members of which subscribe and obtain hives at various intervals by drawings. He saw thirty or forty bar-framed hives in the neighbourhood. The lady advances money for the purchase of materials, and some one keeps a depôt for these materials, from which small quantities can be bought at cost price. He considered that bee clubs like this were to be encouraged.

Mr. Stewart said that in Montgomeryshire he found the cottagers there working intelligently with the skep, and some also with the bar-framed hive. They seemed, however, to have very little knowledge of modern improvements. He lent them the *Manual*, and had afterwards given them back numbers of the *Journal*. They read these with avidity, and were glad to have the address from which they could obtain copies of the *Journal* from time to time. While he was there he had ascertained that the persons referred to were not working these hives on their own account. A great lady owning a mansion in the vicinity, which she let, had left her farms under the management of these people, who temporarily took charge of her bees, the profits of which belonged to the lady. He thought that if he taught these men how best to produce good profits they would be induced to keep hives on their own account. He had since heard that his instruction had had the desired effect. He thought that it was always desirable to give information to the labouring classes on this subject, regardless of whether there was any likelihood that it would show results. He, however, always told them that they could not maintain themselves on their hives, but only that judicious management would insure them considerable profits, and give them useful and intelligent occupation for their spare time. He was of opinion that it would be well for the wives and children of the peasantry to be brought up to a knowledge of the management and cultivation of bees.

Mr. Bartrum thanked Mr. Peel for his most interesting paper. To define a cottager was no doubt a matter of considerable difficulty. He doubted the advisability of distinguishing between labourers and artisans. He thought there should be two classes, the distinction between each being governed by the rateable value of the house occupied by the exhibitor. In his own district they had laid down this rule in the matter of prize-giving. Where the rateable value was under 10*l.* a-year the occupier was considered to come under the class of artisans and railway porters. A cottage that was rated below 6*l.* a-year would be the habitation of a labourer or some one who was placed in the lower class. He thought, however, the exact amount of rental must be fixed according to localities, which varied much in the price of property. It would be undesirable, in his opinion, to draw a distinction on the basis of the occupation of the individual. A man perhaps called himself a carpenter, but there were carpenters and carpenters, some skilled workmen, and others labourers merely, and in country places it was often found that there were labourers one day and artisans another.

The Rev. Blake Humfrey said he should like to ask Mr. Peel what he would suggest as the proper amount of subscription to be paid to Associations by the *bonâ fide* cottager if he were divided into two classes, the labourer and the artisan, as proposed. Should the first class, that is, the labouring class, pay 1*s.*, the second class 2*s.* 6*d.*, whilst the higher grades pay 5*s.*? That was a question that would arise, which had better be settled, he thought.

Mr. Garratt thought the idea of fixing the qualification of a cottager at a 4*s.* rental would not be a very practical solution. As had already been said, the rentals of similar houses vary very much in different districts. In one district the rentals charged in the village itself, and those charged a mile out of the village, seem to bear very little relation to each other. For 2*s.* 6*d.* per week outside the village a far better cottage could be obtained than at 5*s.* per week within the village. He thought a hard-and-fast line impracticable. He had endeavoured to think of some means by which an agreement as to the qualification might be arrived at, but he was unable to suggest any. With regard to Mr. Blow's remarks respecting the slow growth of ideas among cottagers, he could only say that he had noticed signs that the labouring classes were being awakened to the necessity of more certain and better methods of bee-keeping. He had tried wherever possible to advance the objects of the Association amongst his poorer neighbours. In some cases he was glad to say that his efforts had been rewarded. One man whom he had endeavoured to help along by useful instruction, and by occasionally lending him materials, had this spring taken the initiative himself, and had asked him for foundations, sections, etc. Another man who had been for a long time an agent for a third party, had now begun to interest himself on his own account, and had likewise asked for foundations, etc. The stir which had recently been made on this subject rendered him more hopeful than he had ever been that the aims of the Association would meet with success. It was most desirable that the point raised by Mr. Peel should be settled. He had had considerable difficulty with a schoolmaster who wished to be classed as a cottager, and who had paid his 2*s.* 6*d.*, and allowed that sum to remain in their Treasurer's hands many months before he would consent to contribute the remaining 2*s.* 6*d.*, which he was only prevailed upon to do after an example had been set him by the schoolmaster of an adjoining parish. He thought great caution should be exercised in drawing distinctions, and that all doubtful cases should be submitted to each committee. In these instances inquiries should be made of persons who are well acquainted with the circumstances of the persons in question.

Mr. Stewart remarked that it might be as well in the matter of subscription to let the subscribers decide for themselves as to what class they should enter. Those who claimed to be cottagers would have no voice in the management of the Association. The lowest class of cottagers were allowed to compete without entrance-fee. If there were any doubt about the status of an individual let it be said, 'We accept your subscription as a cottager, but you can only compete in the artisan class.'

Mr. F. R. Jackson thought that Walton, who advertises his extractor, could not be considered a cottager. A man might live in a very humble way; but in the case of Walton the extent of his business would almost be sufficient to bar him from entering the cottagers' class, he really being a manufacturer. He believed there were several who, in view of this case, would take objection to the limit being fixed at a rental of 10*l.* or 4*s.* a-week.

Mr. Dunman considered that a distinction between the cottager and artisan was most necessary, for so far as regarded his district he should not expect cottagers to compete at all if they had artisans as rivals. He saw great difficulty in basing that distinction on rentals, because in Dorsetshire many of the agricultural labourers lived in houses which were not on the rate-book at all, their dwellings belonging to farms. On the recommendation of Mr. Peel the Association he represented

had been sending out an expert, who had made a series of visits, and was now on his journeys.

The Chairman was of opinion that the definition of a cottager must be left to the authorities of each district, who are in a position to gather all information concerning each case in question as it arises. He knew of an instance in his own county of Cornwall, where a holder of about eight or ten acres had been classed as a cottager by the local Association. This man, although a small farmer, lived in a house rated at about 3*l.* or 3*l.* 10*s.*, and his whole estate would be worth perhaps about 20*l.* a-year. At first sight it would appear that this man should have been placed in a higher grade, but it was undoubtedly a fact that he was not making more than 30*s.* a-week for himself. As regarded Cornwall a cottager who lived in a 10*l.* house would, as a rule, be a considerable tradesman, or in fact something very far removed from anything like a cottager in other districts. He was glad to say that they were not so far behindhand in respect of modern improvements as many would expect in a county so far removed from the large centres. The humblest cottagers seemed to take a practical interest in bee-keeping, some of whom were getting bar-framed hives, and there appeared to him every reason to hope for continued progress.

The Rev. H. R. Peel in reply stated that while acknowledging the force of some of the remarks which had fallen from the different gentlemen who had spoken he had not changed his opinion as to what he considered the proper cottager qualification. With regard to bee-clubs he thought they would form a serious objection to the county Associations if established independently of them. He therefore recommended that where these bee-clubs existed the members should be prevailed upon to join the local Associations. With regard to the subscription he thought the agricultural labourers should pay 1*s.* and the artisans 2*s.* 6*d.* As to the rate-book qualification recommended by Mr. Bartrum he thought there would be some objection to that plan. As they had just heard there were people not on the rate-book at all. It should be remembered that he had proposed to take into consideration rental in connexion with wages, using these two factors to arrive at a decision. In the case of a man whose cottage was rented at 3*l.* 10*s.* only there could be no doubt as to what he was. The speaker, in defence of Mr. Walton, remarked that the latter was without doubt a *bonâ fide* cottager, for he lived in a house which was one of a row of cottages. There was no reason why Mr. Walton should not advertise his extractor and make a profit by it, nor why this circumstance should be considered a bar to his entering the cottagers' class. If Mr. Walton chose to use his income derived from bee-keeping in making an invention there was no reason why he should not do so. He (Mr. Peel) quite agreed with Mr. Garratt that in all cases of doubt as to the social position of particular persons the local Associations and persons in the vicinity should be consulted. This fact showed the importance of all the Associations working together. By this means the local societies could supply the parent Association with the information it needed, and the latter could supply the cottager with prizes. There was no doubt that mutual assistance would best advance their cause.

Mr. Bartrum proposed a vote of thanks to the Chairman.

Mr. Stewart seconded.

The Chairman acknowledged the compliment, and said he was sure that his friends of the Cornwall Association would be proud of the honour done him that day.

A cordial vote of thanks was then given to Mr. Peel for his interesting paper.

The Monthly Meeting of the Committee was held at 105 Jermyn Street on Wednesday, May 16. Present: Thos. W. Cowan, in the chair, Rev. E. Bartrum, Hon. and Rev. H. Bligh, Rev. Geo. Raynor, J. M. Hooker, H. Jonas, D. Stewart, and the Assistant Secretary. The minutes of the last Meeting were read, confirmed, and signed. Letters were read from the Managers of the London and North Western and Midland Railway Companies stating that the memorial of the British and Affiliated County Associations for the reduction of the rates for carriage of bee goods had been fully considered at the conference of railway managers on April 26, the conference being of an opinion that no alteration of the present rates could be made, and that it was not desirable for the railway managers to receive a deputation upon the subject.

Judges were selected for the forthcoming Show at Knightsbridge, the names of which will appear in our next issue. It was resolved to publish the 'Syllabus' for the guidance of candidates in the forthcoming examination which takes place during the Annual Show on July 5, 6, 7, 8, and 9.

Examination for Certificates as Experts.—Persons intending to enter for this examination must give notice to the Assistant Secretary, Mr. J. Huckle, King's Langley, Herts, on or before Wednesday, June 27th. Full instructions will be given in our next issue.

The next Committee Meeting will take place on Wednesday, June 6th.

BRIDGWATER SHOW.

This Show, opened on the 28th of May, forms one of the best exhibitions of bee-keeping appliances ever held out of London. The place selected is an admirable one; the buildings are lofty and well lighted. The supply of honey is limited, there being none of the present season's on show.

BRECONSHIRE BEE-KEEPERS' ASSOCIATION.

A series of meetings have been held in the county, at which addresses have been given by Mr. T. B. Blow.

At Glasbury the chair was taken by the Rev. J. Knight Law. The audience was large, and amongst others were H. Battiscombe, Esq. and party, Miss Lloyd, Mrs. North, S. Thomas, Esq., and the Misses Thomas, Rev. Herbert Williams.

At Crickhowel the chair was taken in the afternoon by Col. Milman, and most of the gentry and clergy of the neighbourhood were present, including R. Miles, Esq., and Mrs. Miles, Miss Taunton, Mrs. Hill, W. Hewett, Esq., Rev. B. Somerset, Rev. J. and Mrs. Evans, Rev. H. Williams, Rev. J. Hughes, Miss Swinton. In the evening the chair was taken by Rev. B. Somerset, rector of Crickhowel.

At Devynock the Rev. Prebendary Garmons Williams took the chair, and amongst others were the Misses Williams, of Penpont, G. Williams, Esq., and the Misses Williams, of Abercamlais, Miss Maskelyne, &c.

At Builth the chairman was J. Vaughan, Esq. The audience was small. A great amount of interest has been created by these meetings, and doubtless great benefits will result, both to bee-keeping and to the County Association.—Miss Swinton, *Hon. Sec.*

DEVON COUNTY AGRICULTURAL ASSOCIATION.

At the Annual Meeting of this Association at Bideford on May 16, a marked feature was the bee and bee-hive department under the auspices of the Devon and Exeter Bee-keepers' Association. Owing to the show being so early in the season no honey was shown, but with regard to wax there were four good entries. There were fifty entries of hives of different apparatus, including some hives shown by the Hon. Secretary (Mr. W. N. Griffin) and Messrs. Richards and Honey. Also Mr. Moxey, of Exeter, and Mr. E. J. Butt, of Barnstaple, were exhibi-

tors. There were in this department some very good honey extractors and some excellent specimens of comb foundation. In the class for cheap supers we found the 'Excelsior' super, invented by Mr. Griffin, and manufactured by Messrs. Richards and Honey. It is one of the nicest supers that has been brought before the public. In the class for new inventions there were some very neat crates for carriage of sections and honey-bottles by rail, and also an improved 'dummy.' The bee manipulation-tent was this year quite new, and constructed on a new plan by Captain Gilbert, R.N., the hon. expert of the Association. It is erected on the principle of the hurdle iron fencing, having no tent-poles as supports, and with a new screen to protect visitors.

The following is the Prize list:—

Bees' Wax.—For the best sample of bees' wax in cakes of not less than one pound each, produced by the exhibitor's own bees—Mrs. Dickinson, Tiverton.

Hives.—For open competition. For the most perfect bar-frame with covering and stand.—First and first-class certificate, W. W. Griffin; second and second-class certificate, A. W. Durant, North Tawton; third, E. J. Butt, Barnstable. For the best and most complete wood or straw hive on the moveable comb principle, suitable for cottagers.—First prize, 5s., and first-class certificate, Messrs. Richards and Honey, Exeter; second certificate, H. Moxey. For the best straw hive for depriving purposes, cost to be taken into consideration.—First prize, 5s., and first-class certificate, H. Wilcox; second, certificate, H. Wilcox.

Comb Foundations.—For the best sample of comb foundation (part for store-hives and part for supers) made of bees' wax not less than three pounds in weight of each kind; manufactured in the United Kingdom, with per pound attached.—First prize and first-class certificate, E. J. Butt; second certificate, E. J. Butt.

Miscellaneous.—For the best and largest collection of hives, bee-furniture, and apiculturists' necessaries; no two articles to be alike.—First prize and first-class certificate, H. Moxey; second and second-class certificate, Messrs. Richard and Honey; third and certificate, E. J. Butt. For the best honey extractor.—Prize, and first-class certificate, H. Moxey. For the cheapest and best super on the sectional principle, for general use in the apiary.—Prize, and first-class certificate, H. Moxey. For the best bee-feeder.—Prize, certificate, W. N. Griffin. For any useful apparatus connected with bee-management, calculated to be of real use in an apiary.—W. W. Griffin, for the excelsior dummy.

NORTHAMPTONSHIRE BEE-KEEPERS' ASSOCIATION.

This Association is making steady progress, having upwards of eighty members, and a liberal subscription list for the acquiring of its own bee-tent. The Rev. W. E. Burkitt, of Buttermere Rectory, has kindly consented to a tour and series of lectures at Towcester, June 4; Daventry, June 5; Kettering, June 6; Wellingborough, June 7; and Thrapston, June 8, when the county will be fully divided into districts, which must add a good number to its members, as Northampton is teeming with straw-skepists, besides many advanced bee-keepers.—J. Davies, *Hon. Sec.*

STAFFORDSHIRE BEE-KEEPERS' ASSOCIATION.

The first meeting in connexion with the new county Association of Bee-keepers was held at the Swan Hotel, Stafford, on Saturday afternoon, under the presidency of the Rev. J. D. Glennie, vicar of Croxton. Mr. A. H. Heath, the acting hon. secretary, after stating that letters of apology had been received from Mr. T. Salt, M.P., Mr. H. T. Davenport, M.P., Mr. W. Williams (Sugnal), the Rev. C. N. Bolton (Cannock), Mr. F. D. Mort (Stafford), and Mr. Woolley (Stone), announced that in answer to the circular which had been issued, aided by the private enterprise of certain gentlemen, he had been enabled to obtain a list of about 110 members. The amount of money promised was something over 42*l.*, the greater portion of which sum had been paid in. The Lord Lieutenant of the county, Lord Wrottesley, had kindly promised to accept the post of president of the Association, and the Duke of Sutherland, the Earl of Lichfield, the Earl of Dartmouth, and the Bishop of Lichfield, had consented to act as patrons. For the progress they had made they were greatly indebted to the British Bee-keepers' Association for the loan of the services of the expert, Mr. S. J. Baldwin, who had delivered a series of lectures in the county; and to this gentleman's energy, and to the excellence of his subject-matter, they owed a large number of their members. He announced that he had given his guarantee for 10*l.* to be offered in prizes at the County Agricultural Show at Lichfield, in five classes for honey and bee-keeping apparatus, and the British Association would supplement these money prizes by a number of medals. It was desirable that they should hold their show in connexion with the County Agricultural Show, and he had made the necessary arrangements for so doing. The British Bee-keepers' Association had kindly consented to lend their bee-tent if they required it, and also the services of their expert, free of charge, their Association paying the expenses. It was resolved, on the motion of Mr. Heath, seconded by Mr. H. Bostock, that the best thanks of the Association be sent to the British Bee-keepers' Association for their assistance in lending their expert, &c., and a similar compliment was paid to Mr. A. H. Heath for his valuable services in organizing the county Association. A number of rules were then passed, and officers and a committee of management were appointed, Mr. Heath consenting to fill the joint office of hon. secretary and treasurer for the present. It was resolved that the Association be called the 'Staffordshire County Bee-keepers' Association,' and that the committee hold their first meeting on Saturday, May 12, when they are empowered to revise the rules and make any necessary additions, to consider any applications for the appointment of expert, &c. The proceedings terminated with the usual compliment to the Chairman.

BEE TOUR IN GLOUCESTERSHIRE.

On May 16, 17, 18, Rev. W. E. Burkitt gave lectures at Lechlade, Fairford, Cirencester, Rev. A. Clementson, Mr. Joseph Cook, and C. Tudway, Esq. most kindly making all needful arrangements. On May 23rd he visited Gloucester at the invitation of Dr. Bond, of the Gloucester Sanitary and Economic Association; and Stroud on 25th, Mr. H. Hunt doing the needful. The attendance was generally small, but all evidently came bent on gaining information and advice. The clergy unfortunately were conspicuous by their absence. The intervening days were spent in visiting neighbouring bee-keepers. Apiaries were set in order and several artificial swarms taken in a way which astonished the novices. At every place there were many most anxious for the formation of a county Association, a point much insisted on by Mr. Burkitt. At Cirencester are many ardent spirits, and all that now seems wanting is some gentleman able and willing to act as Hon. Sec., and there are those at Fairford, Cirencester, Gloucester, Cheltenham, and Stroud, well qualified to act as District Secretaries.

An Early Swarm.—A hive of bees belonging to Mr. Richard McNally, Killearn, swarmed on Sunday, May 6th, the first in Stirlingshire this season. It may be mentioned the same hive, with others, was transferred from Glenluce, Wigtownshire, to Killearn during the cold weather in January of this year by railway, a distance of 160 miles.

Foreign.

BEE-CULTURE IN INDIA.

The following information respecting the bee industry in India, gathered partly from the *Indian Agriculturist*, is of considerable interest. The details were obtained by Mr. John Douglas, Superintendent of Telegraphs, from Mr. Morgan, Deputy Conservator of Forests, and are noteworthy from the light they throw on the modes of collecting wild honey. The best honey-producing flower of Southern India is the Strobilanthes, which not only forms the principal undergrowth of the *sholas*, both temperate and tropical, but spreads over the grassy slopes of the higher elevations. There is an immense number of species in this genus, and they almost all flower once in seven years, dying down entirely, and afterwards a fresh growth springing up from seed. Whenever any species of Strobilanthes flowers, colonies of bees migrate from all parts of the country to feast on the honey, and rear their young brood. At such times honey becomes plentiful and cheap; and as the Strobilanthes honey is of the finest quality and flavour, even rivalling that from the famous Mount Hymettus, it is eagerly sought after by the Todas of the Neilgherry Hills, and in fact by all aboriginal tribes. The year 1879 was such a season for honey that it sold at the rate of four annas per imperial pint, whereas its usual price is from eight to ten annas. This honey, in the cold climate of the Neilgherries, crystallizes in from a fortnight to three weeks, when the flavour becomes richer and finer. In the Wynaad, as soon as the moon has waned sufficiently, great preparations are made to take the honey. Bamboo and rattan ladders are constructed, sometimes of astonishing length, and at nightfall, after 9 p.m.—for the bees do not go to bed till then, as you will find to your cost if you disturb them—the Jain (honey) Kurumbars proceed to the *burray*, and having erected their ladders if they have to climb upwards, or suspended their cane ladders if downwards, arm themselves with torches and knives, and sever the combs from the rock or branch. The drowsy bees, meanwhile, roused by the glare of the torches, desert the combs, and buzz aimlessly about, even on the persons of those engaged in taking the combs, but never attempt to sting unless crushed or hurt. The combs are then lowered down in baskets, the Kurumbars feasting on the larvæ, which taste something like cream, while the fish, which swarm in thousands when the hives are built over a river, have a glorious feed on the grubs and bees that fall into the water and float helplessly down-stream.

The Coorgs make some attempts at bee-culture, and practise the industry to a small extent in their own homes; the bees are domesticated, and the hives, which are of a very primitive description, made merely of the hollowed-out trunks of trees, are placed near the houses. The Coorgs have, however, no notion of collecting the surplus honey by any of the contrivances, such as bell-glasses, supers, &c., in use in England in the different apiaries.

In Cuddapah wild honey is collected also from the cliffs and ravines of the district. The process adopted is both perilous and exciting, and the Yanadies alone are able to climb into the difficult and apparently inaccessible places over perpendicular cliffs, in some places from 100 to 200 feet in height. This they do by the aid of a plaited rope made of young bamboos tied together. This rope sometimes gives way, the result being a terrible accident. It is a very nervous sight to watch the men climbing up these frail supports, and it reminds one of the egg-collecting process in northern latitudes. The men, from below, look like little babies hanging midway, the rope being fastened on the top of the cliff above by means of a peg driven into the ground, or to the trunk of a tree, the man swinging midway with a hundred feet or so above and below him, and armed with a stick and a leather basket. The Yanady first burns some grass or brushwood under the hive, by which the bees are driven out; he then swings the rope until it brings him close to the hive, which he pokes with his stick, holding out his basket at the same time to catch the detached portions of comb. When the basket is full he shakes the rope, at which signal his comrades above draw him up. The bamboo ropes are left to hang often for years until they rot away; for a rope of this kind is never used twice, a fresh one being made on each occasion and at each place.

South Canara is also a great honey district. The honey and wax have, however, but little local value, a maund, about 25 lbs., only fetching R2. It is thought that much might be done to open up the industry by exporting the honey and wax to England, the latter being a valuable product and one for which there is always a demand. The trade at present in Indian honey is almost entirely confined to wild honey; but as the keeping of bees is an industry requiring little or no capital, it is especially adapted to the people of India. Should the returns obtained from the inquiries now made and set on foot by Mr. Douglas show that it is worth while to introduce this industry in a practical form, then Mr. Buck—the whole subject having been placed under his Department—may possibly see his way to making a decided effort to interest the people in systematic bee-culture with a view to the trade in honey and wax becoming ultimately a profitable one to the country.—Colonel G. F. Pearson, *Nancy, France.*

NEW ZEALAND.

Mr. Charles Chaplin, the well-known bee-expert, formerly of Westbury-on-Trym, near Bristol, has just returned from a visit to Banks Peninsula. During his stay in that locality he succeeded in raising several Ligurian queens from eggs taken by him from Christchurch. These he has distributed among various bee-keepers, for the purpose of introducing the Ligurian stock. While at German Bay he packed a ton and a half of very superior honey from Mr. Dawber's apiary for exportation to England. Mr. Chaplin states that the honey harvest on the Peninsula this year has been an excellent one. Unfortunately, however, a considerable portion has been lost owing to unscientific management.—*Lyttelton Times.*

BEE-KEEPING IN VICTORIA, AUSTRALIA.

We have had a remarkable time this year: in the whole of the twenty-five years since I kept bees I never had more honey than this year. The year 1868 was very good, but it does not come up to 1883; and what is most remarkable is this, that the bees after they finally despatched the drones have again set on drone-cells and queen-cells in abundance, and hence I anticipate a mild winter; but on the whole the bees have eggs and brood all the year round, even in the coldest winter month in July I often find brood in the cells, but no drone brood until September; sometimes I wish to have the Ligurian bee, but this year we do not need them. The native Australian bees are very good, become easily domesticated, and it is a rare case that I get any stings from them. I find that the information I most need I cannot get from English or German books, because their main force is directed towards winter management, and this is not needed here where bees fly all the year round. It is a rare case that we have need to feed them; last year I did feed a little, and it did stimulate them to renewed diligence.—Hermann Naveau, *Hamilton, Victoria, Australia, March 23rd*, 1883.

AMERICA.

Combs v. Extracted Honey.

There seems to be quite a diversity of opinion in regard to producing comb and extracted honey. I have

had some experience in producing both, and can probably say something that may be a benefit, especially to the amateur. The idea, that honey extracted before being capped by the bees, has all the good qualities of honey that is capped before extracting, does not meet my approbation. I am so thoroughly convinced that honey extracted while green is inferior to honey capped before extracting, that I do not expect to extract any more green honey unless in cases of emergency, when bees are gathering rapidly and have not sufficient combs to store their precious sweets; and here let me say, that a too free use of the extractor is one reason why many bee-keepers complain of not having surplus combs. All apiarists know that bees will not build comb, to any great extent, only as instinct teaches them it will be used for storing honey, therefore bee-keepers should not expect their bees to build comb, and at the same time keep the combs they already have empty, by the use of the extractor.

The judicious use of the extractor is more than merely to learn how fast you can sling the honey, and leave the bees to starve the following winter! While I am free to admit that the extractor is indispensable in an apiary, I do think that, all things considered, extractors kill as many bees as they help to produce.

Do not understand me to accuse an experienced bee-keeper of such blunders as to kill bees in such a manner, but as there are many persons just embarking in the business, I thought a word of caution would not be out of the way and may be appreciated.

When we examine an apiary in autumn, worked for extracted honey, where we use a two-story hive, and when we wish to supply our bees with food for their long winter nap, we find the honey in bad shape for winter, the combs in the brood-chamber often being destitute of honey, and contain much pollen, while those in the top story are sure to be full from top to bottom, or nearly empty. Such has been my experience.

I learned, several years ago, to be rather timid with the extractor, and settled down on the following plan: When white clover, which is our main dependence for surplus honey, fairly opens, I select, in the top story (for I seldom bother the brood-chamber for surplus), 5 or 6 frames of the best worker combs, if they can be obtained; if not a few drone-combs can be used, and mark the letter W (which signifies Winter) on the top bar; put those combs near together, and do not extract from them. As soon as the honey in these combs is sealed nearly half way down, I spread them apart, and insert in each alternate space an empty frame, or one partly filled with comb or foundation, and the frames thus inserted can, as fast as completed, be extracted at pleasure.

I thus secure three objects: A hive full of straight comb; the queen is forced below, on account of the frames marked containing much honey and being far apart, and the rest of the combs, as fast as completed, are filled with honey, having a nice lot of sealed clover honey for winter.

But here comes the trouble. Empty combs will not do to winter bees on, neither do I believe full frames of honey, without some empty cells, much better, in this latitude; but when we produce comb honey, the honey in the brood-chamber is in a much more desirable shape. I believe I am the only one in this part of the country that produces comb honey, and being requested, by some of my neighbours, to write my plan of manipulating sections without separators, I cheerfully make the effort.

The first thing, after the sections are on, is to get the bees to work in them; for Italian bees are very loath to enter boxes. The best method that I have ever practised is to use 10 frames in the brood-chamber until the bees are strong in number, and ready for the boxes; previously to adjusting the boxes, I remove all but 7 or 8 frames, and use a division-board on each side of the frames, so arranged as not to allow bees behind them. The hive having, heretofore, been crowded with bees to its fullest capacity, and by contracting the hive inside, the bees are compelled to take possession of the boxes immediately, or cluster outside the hive. As the bees are not desirous of swarming yet, and as the honey harvest has just commenced in earnest, they are most likely to work in the sections. Now, having the boxes on, with a starter of comb or foundation in each section (the former preferred), and after the bees have been at work in them a few days, probably they may need some attention. I usually examine each section twice a-week, and this is the main secret in obtaining straight combs without separators, for we are sure to find some probably half finished, whilst others near them are just commenced. Take out all the sections that are nearest completed, and put them together, thus always keeping the fullest together, and the ones least worked in near the lean end of the row. If any of the sections are nearer completed on one side than on the other, put them with their fullest sides together, or near the glass at the end of the row, but leave space between the honey and end of the box, sufficient for the bees to pass, or they will empty the honey from the outside and carry it to the other sections, which is only a loss of time, and the hives are level from right to left: and if I follow the above plan, I seldom have to bend or cut a piece of comb, although if I cut a bit of comb out, it is not lost, but will make a nice starter for another section. If not quite so cheap as foundation, it is much better.—A. W. Stith, *American Bee Journal*.

Correspondence.

**** All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* "The Editor of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*"

All Correspondence must bear the name and address of the writer, not necessarily for publication, but as a guarantee of good faith.

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of April, 1883, amounted to 1518*l.*

[From a private return sent by the Principal of H. M. Statistical Office to E. H. Bellairs, Christchurch.]

ANGLO-CYPRIAN HIVE.

In reply to Mr. Cowan's remarks on this hive, I contend that the frames are not triangular, and are not the same in principle as either Major Munn's or Mr. Wyatt's. These hives had V-shaped frames with horizontal top bars, and in common with Mr. Godfrey's circular-frames and the frames of ordinary bar-frame hives had all the disadvantages of allowing free circulation of cold air around the ends of bars, which I claim does not take place in the square frames placed cornerwise of the Anglo-Cyprian hive. The frame ends cannot possible get jammed in tightly between the hive-sides. The angle of the hive-sides quite prevents this. Breeding will, I believe, not take place at the extremity of bottom angle, but will reach fairly low down, and in proportion to the size of the frame quite as much space will be utilised for this purpose as in an ordinary frame. The objection that the heat rises to the top would be just as great in the ordinary frame-hive as in the Anglo-Cyprian hive.

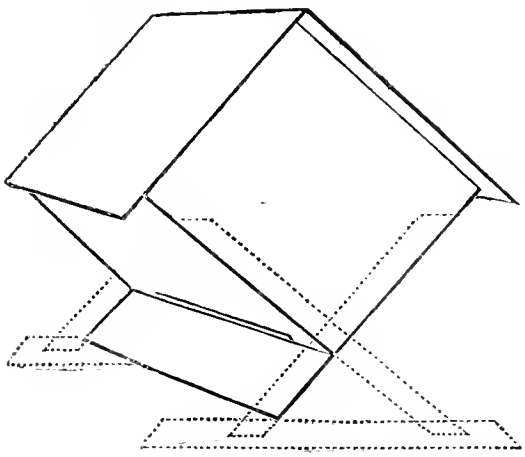
It was explained in the last number that a space should have been shown (in the engraving) between the bottom of hive and the bars, thus avoiding the chance of

crushing bees. A door is provided in the bottom of the hive—along the whole length—for clearing out débris, &c., and this far more easily than in the ordinary frame-hive. A special extractor would not be absolutely necessary, though perhaps advisable, as many of the extractors in use will take these frames.—THOMAS B. BLOW, *Welwyn, Herts.*

ANGLO-CYPRIAN HIVE.

Press of work has hitherto prevented me from offering a few remarks on the above hive as introduced to the readers of the *Journal* last month. I do not care to discuss the question of parentage as opened in last issue by Mr. Cowan. Only I may say, that for the past four years I have made no secret of the matter among my friends. Among others I gave the idea to Messrs. Stewart, Arbroath, Cockburn, Cairnie, and Paterson of Struan, and it is quite possible that the hive said to been exhibited at Glasgow last year may have had its origin in connexion with one or other of those gentlemen.

Mr. Blow's paper certainly took me by surprise, as I had no idea that he was going to bring out this hive so soon. And had he consulted me, I think I could have enabled him to improve on its first appearance as well as upon his statement of its facilities. In the first place, I regretted to find he had improved away my simple idea of a doorway along the bottom of the hive



(see fig.). The adoption of this doorway, it will be seen, removes Mr. Cowan's main objection. But if all débris would fall out of the hives, and thus materially lessen the labour of the bees, how nice also to have robber bees and wasps rolled out by it so easily!

My first idea of this form of hive occurred in course of a study of how to reduce the number of pieces of wood in a hive-body. And I have frequently put it thus before hive-makers: I could undertake to make a complete hive-body, including roof, porch, and floor-board, but without stand, of six pieces of wood. This was generally considered impossible until explained (see fig.).

The following points of excellence should be taken into consideration before a verdict can be reached:—

1. It embraces in perfection the advantage of a taper frame.
2. Of a close-fitting, yet easily worked division-board.
3. It does away with any necessity for double walls.
4. It gives the bees a winter nest that may be entirely surrounded with soft packing.
5. The style of frame allows of foundation being securely fastened on two sides of every sheet, any sagging that may take place only rendering the comb the more secure.
6. It allows a circular card of brood in each frame without leaving more space unoccupied than is absolutely necessary as a larder.
7. It allows of sections being placed over the frames in closest possible proximity to the brood.
8. It encourages the bees to breed from the highest point—where they will naturally winter—downwards, thus ensuring unusual protection to the first hatch of brood in spring.
9. It gives a larger surface for sections than any other form of hive.
10. The position of the sections almost ensures that fewer 'pop-holes' will be left through the combs.
11. The roof, necessarily of 45° pitch, will readily shed off all rain.
12. With doorway as I suggest, no porch is necessary, and all débris, including dead bees, falls out of the hive.

Against the foregoing advantages I place the following: The upper part of the frames being necessarily the heavier, and the 'lugs' consequently below the centre of gravity, the frames will be more difficult to handle, and require special means of maintaining them perpendicular in the hive. To meet the latter difficulty, I should have them widened at the upper corner and where they rest on the sides, so as to touch each other at three points. Such frames of course would require a special form of extractor, as Mr. Cowan suggests. But my idea has been against using such a hive for extracting purposes. After careful consideration I have resolved to have my frames very small, only large enough to hold four 1lb. sections, or at most not over 10 inches square. Even such a frame with its circular card of brood is, for breeding purpose, better than one of Standard size. And with the extra facility for working sections, both on top and in suspended frames, I do not consider an extractor need ever find much to work upon. On the whole I think the hive well worthy of a trial.—W. RAITT, *Blairgowrie.*

COMBS SEVEN FEET LONG.

Hearing that some bees had been established for many years in a slated roof in this parish, I got permission to capture them (if I could), and proceeded to try my skill a few days ago. On examination it was found that the slates were close-boarded underneath, so the combs could not be got at outside. We therefore got permission to cut away the lath and plaster in the ceiling of the attic. This being done, a nest was laid open to view between two rafters about 8 feet long and 11 inches wide, and 7 inches deep. The combs were built very even, and ran up parallel with one another for nearly 7 feet in a straight line. Towards the top the combs got much thicker and more uneven in shape, and the passages turned to the right and the nest was extended into the space between the next two rafters. The central part of the combs was well filled with bees and brood, both worker and drone. The upper and lower part of the combs was of very clean appearance, and had evidently been used only for honey. I fastened some lengths of brood comb, with the cluster of bees upon it, into a hive, and brushed in all the bees which had flocked to the window-frames. The hive was moved in the evening to a garden nearly a mile off. They have not shown any signs of returning yet. There are several other stocks in the roof, which seems to have special attractions for bees, swarms having been seen to go there from neighbouring places.—WALTER P. MEDLICOTT, *Swanmore, Hants.*

SYRIAN BEES AND FERTILE WORKERS.

From time to time disparaging statements have appeared in the *Bee Journal* regarding the fierceness, &c., of Eastern bees; and as I think such reports have originated through misunderstanding their peculiarities, I hope you will find room for this letter, which I trust may raise

some interest in these valuable bees and that in a year or two they may be as well understood as blacks.

Mr. Blow, page 7, Vol. X., says he saw Mr. Benton open hive after hive of Cyprians without veil or gloves, and none attempted to sting: and, from my experience of Syrians during the previous summer, I fully believe he spoke the truth, providing you open on a fine day, *and that you neither use, nor smell of smoke, nor have any smoke about.*

I always open gently, without jar, taking hold of quilt at one corner and drawing it gently off diagonally, drop it down, and begin taking out the frames the next moment. If I want any frames out, I shake them clear of bees into hive bottom; what bees take wing buzz about like a host of robber bees do about some honey they have found, and none will venture to sting. In looking over the combs you never fail to catch sight of the queen.

Without exaggeration, I would rather manage six Syrians than one black lot; but while I find them so tame *without smoke*, if they only get a smell of it,—even if you leave a lighted smoker ten yards away—they are perfect demons. If you blow smoke on them they fly away from it in the front and attack you in the flank and rear; if you happen to be well gloved and veiled, they will get up pant-legs, in at button-holes, and give you some very sharp reminders that they have not been approached in a proper way. By smoking and sprinkling syrup on them one afternoon, I think I did get their tempers up to the full pitch. Being well gloved and veiled I felt safe, though I was literally covered with angry bees all probing: thousands were on the veil trying to fly through to my face, and on account of the great quantity they forced it close when I received more stings on my neck and face than I ever did in all my life before. I saw the queen running about the combs as if she was mad; I closed up the hive 'anyhow,' and got away the best way I could.

Feeling uneasy as to the safety of the queen I opened them again the next morning, using only 'confidence,' when I found them as tame as flies and the queen safe, since which time I have never *dared* to let them smell smoke, either before or during the opening of them.

Now a few words as to their peculiarities. I find they are the first to go to work in a morning: some days they are the only ones out, the blacks staying at home; they are smaller than blacks, build about 8 cells in a line of $1\frac{3}{4}$ inches, blacks ditto about 7 (they breed well in cells built by blacks); the queen lays in the season upwards of 3000 eggs a-day. One time I examined them, they were in 8 frames $14 \times 10\frac{3}{8}$, the first one was a drone-comb which was quite full of honey, the last one was filled with honey, brood, and pollen, the rest, six in number, were filled from side to side, top to bottom, with sealed worker brood,—not a speck of anything else; it was grand to see the frames covered with the beautiful little things; they only reared about a hand's breadth of drone-brood, which were not destroyed at the end of September—I think they died off through old age.—JOHN HEWITT, *Sheffield.*

(To be continued.)

EXPERIENCES WITH MILK AND EGGS AS A BEE FOOD.

I see by the last issue of your valuable *Journal* that you are giving Mr. Arthur Todd's new method of 'What shall I feed my bees?' as it appeared some time ago in the *American Bee Journal*. I had read Mr. Todd's article, and I immediately thought I would put it to the test. I had just given all my bees clean hives, after taking them out of winter quarters; and wanting to stimulate them, to be ready for white clover bloom, I commenced to feed with a syrup made as follows: 14 lbs. of loaf sugar, 10 pints of water, $1\frac{1}{2}$ ozs. of salt, $1\frac{1}{2}$ ozs. of salicylic solution, 3 pints of sweet milk, 2 eggs well beaten. I first boiled the milk, and removed the clot as it boiled, and also after it cooled. I then boiled the first four mentioned; and while boiling added the milk and boiled all about five minutes. After these had cooled I added the well-beaten eggs and thoroughly mixed the whole mass. I commenced to feed this syrup very slowly, with one pin-hole in feeder, and at the end of a week on looking at a hive, saw that the bees were *balling* the queen. I immediately released her, and after smoking the bees, caged her two days. I released her; and on looking twenty-four hours after, found her *balled again.* I thought it was no use trying again, so I decided to take away the balled queen and unite this hive to another, not just as strong as I would like.

I went to No. 2 hive, to smoke and scent the bees before uniting No. 1 with them; but, lo, there I find No. 2 queen *balled too!* However, I caged her, and then united No. 1 hive to No. 2. This balling business made me keep a sharp look-out for the other hives. In a day or two more I found another queen balled in No. 3, but after caging for twenty-four hours I found her dead in the cage. I united No. 3 to No. 2, thus I had three hives all united together with a caged queen. On looking again I found a fourth queen balled, and I caged her too. I may here remark that after caging No. 2 and No. 4 for four days each, they were taken all right.

I gave the bees a thorough smoking and scenting before letting off the queens. I blamed the feed for causing the bees to ball the queens. I sent the first queen to Mr. F. Cheshire, but she reached that gentleman so crushed that microscopic examination was impossible. I had only two queens balled at the time I wrote to Mr. Cheshire, and that gentleman sent me a very nice reply indeed; but I had not stated the facts clearly enough to him to enable him to form an opinion. He thought I united No. 1 to No. 2 before seeing No. 2 queen balled: and that the balling instinct was still on No. 1 bees, which made them ball No. 2; but the above shows I found No. 2 balled before uniting No. 1 with them. (Allow me to thank Mr. Cheshire for his kind reply.)

I also wrote to Mr. Baldwin, but he either read my letter in a hurry, or else my figures had been very bad, for he understood me to say 12 ozs. of salt and 12 ozs. of salicylic solution (enough to make the bees lick the roof of their mouths). His opinion was that robbing caused the bees to ball their queens. Such was not the case: my bees were pretty much confined during the time I was feeding, owing to the very cold weather. However, no robbing took place with me this year, for in this branch of bee-keeping my motto is, 'An ounce of prevention is worth a pound of cure.' I thought the feed perhaps rendered the queen's ovaries sterile; but when I released the last queen from being balled she laid two or three eggs in my hand. The only conclusion I can arrive at now is, that the feed either gave the queen some offensive smell, or else made the bees want to have a republic.

I write this warning to all British bee-keepers, to go very slow about the milk-and-egg food business. If any bee-keeper should feel like trying it, my advice is, make very little at one time, or it will ferment, and so be damaging. I felt like a fermenting smell in my bottles when I was refilling them when feeding. Mr. Cheshire's experiments upon milk-food do not influence him in its favour. He thinks albumen and caseine in syrup will be very likely to cause fermentive germs in the temperature of the hive with prejudicial results.

In conclusion, I most cordially invite Mr. Cowan, Mr. Abbott, or any other bee-keeper, to give their opinion on the above. I am sure it would be read with great interest by all your readers, and equally so by your correspondent,—WM. DITTY, *The Apiary, Morilla, Newtownards, Co. Down, Ireland.*

DIRECT QUEEN BEE-INTRODUCTION.

I have been induced to try the above method, and it occurred to me that my experience so far might interest some of your readers. Having suffered many losses

amongst my stocks during the last month, I had one case about three weeks since of starvation, that of a stock in a straw hive thought to be doing well, it was fed last autumn and again this spring, but found one day nearly exhausted for want. Search was made for the queen, and she was found nearly dead, but revived with breathing upon. Her bees also seemed as though warmth would revive them, and queen and bees were warmed before a fire for half-an-hour; but on being returned to the hive declined to have any more to do with it, and would crawl away. The queen was again secured, and I determined to introduce her to a stock in a bar-frame hive which had been queenless all the winter; but I preserved them, hoping to find a queen for them. Here then, she was. Following Mr. Simmins' directions I introduced her, and she was accepted. She began to lay eggs immediately; but unfortunately the bees were old and dwindled down very fast. I now saw that I should lose my queen unless I could make use of her elsewhere. I have a Stewarton hive, with one body box well filled with bees and brood, also a body box (No. 2) filled with empty comb. I resolved to make an exchange with the boxes, taking a frame of empty comb from No. 2, and placing a similar frame, with bees and brood from No. 1, therein; this I did, then taking the queen from the dwindling bees, I introduced her to these bees with the brood taken from No. 1, and placed in No. 2 box last evening. This morning on making examination I found the queen quietly walking amongst the bees and brood. Very few bees had left the brood hive. I have now again, 4.40 p.m. ere I close this, again been to look at them, and they are going on all right. This probably may be claimed as a triumph for direct introduction. I will tell you how they progress another time.—Fred. H. Lemare, *Guildford, May 22nd.*

THE UTILITY OF DRONES.

On this most interesting and important point a 'notion' occurs to me which, though I am not aware of having ever met with it, may be as old as apiculture itself, and which, on the other hand, may even, if novel, yet be worthy of ventilation. In addition to other valuable service which we are beginning to appreciate the capabilities of these gentry for rendering, may not their song be of considerable utility? May not the deeper, richer music of their hum be the expression of a tender gallantry pleasing and stimulating to both queen and workers? May not these last, though the sexual organs, and therefore probably the sexual instincts, are immature, yet have in them somewhat of the universal feminine appreciation of the blandishments of their adorers? May not workers, especially during the drowsy hours of a sultry midday, be roused to enterprise and revived on their return by the polite attendance and cheery hail of the other sex, around as well as within the hive? And just as the song of the male bird is welcome to his mate during the building and breeding season, may not the merry music of their gay Lotharios be inspiring to all the female hearts of the colony while engaged in domestic drudgery and nursery cares, though the actual breeding be the work of one alone? Then when the toils of the harvest-field and the cares of the family are drawing to a close, and the season of hibernation gives inward as well as external intimation of its approach, may it not be a spirit of utilitarian ingratitude which prompts to the base slaughter, or expulsion, of those whose function will be for a while in abeyance?

Not for one moment would I imagine that this theory covers the whole ground; but may it not, in conjunction with other suggestions, help us to give even drones their due? I should much like to know whether this point has been even duly considered; whether any experiment has ever been tried by way of working a droneless hive in seclusion throughout the season, any attempt made to guage the relative activity of workers and fecundity of a fertile queen with and without this cheery attendance. Is it after all possible that an early and artificial exclusion of this element has a chilling effect on the spirit as well as the brood-nest of the stock on which it is practised?—P. M. Eastman, *Long Melford, Suffolk, May 17.*

SINGLE *v.* DOUBLE-SIDE HIVES.

The decision of the Frame Committee that the top bar of the Standard frame shall be seventeen inches, is a recognition of double sides as a *sine qui non* for a complete hive, as a top bar of that length will not fit into a single-walled hive (unless projecting over the sides and fitted with broad ends). The result has been a defeat of the great object of uniformity, for many hive-makers who in other respects have adopted the Standard are obliged to make the top bar of shorter length in order to meet the growing demand for a cheap and substantial hive.

Now I for one have long been of the opinion that double sides are (in our climate) useless and expensive complications, and that bees do equally as well in stoutly made hives of a single thickness (not less than one inch).

I have for some years carefully looked in the numbers of the *Bee Journal* to see if any one having made comparison between stocks in double and single-walled hives, has found any advantage in the former; and I have hitherto failed to come across such a case, while instances in which bee-keepers have found bees in single-sided hives come out strongest in the apiary are several times met with.

Cannot this question be discussed in all its bearings and settled once for all? I must acknowledge that although I have kept bees in both kinds of hives, I have not hitherto made a careful and accurate comparison between them under similar circumstances, I am quite willing to so and faithfully record the results if others will do the same.

I am afraid that double-walled hives have been chiefly upheld by makers of expensive bee-furniture; but if a well-made hive costing seven to ten shillings is practically as good as one costing thirty shillings, is it not high time that the fact should be recognised by our Central Association which advocates bee-keeping on economic grounds? My chief point is this: that if the Standard frame were of a size to fit into a hive with single sides (say with a 15½ inch top bar for ⅞-inch rebates), those who still prefer double sides would be able to adopt them to take the same frame, whereas, as I have pointed out, the present Standard will not fit both classes. I have found a short top bar quite as convenient for manipulation as a longer one.—A. Watkins.

(*To be continued.*)

OBSERVATORY HIVES.

Can any of your readers give a few plain and practical instructions for making and managing a simple, cheap observatory hive?

Bees are subject to such a number of varying influences in relation to their own peculiar character and internal condition, and to the outward circumstances of season and weather, that the experience of one bee-keeper cannot in every essential detail of management be made to meet the requirements of all. In other words, the combined experience of the closest and most skilful observers, though of incalculable service cannot reduce the culture of bees to hard-and-fast rules applicable in every case. I hold, therefore, the strong conviction that in regard to each individual bee-keeper the fullest success can only be attained if his management be based upon the result of his own experiment and observation. The moveable frame has done much towards the attainment of this necessity; but, as the modern hive is to the old-fashioned skep, so, I take it, is the observatory to the

usual dark home of our little friends. The moveable frame reveals to us the results of their wonderful labours; the observatory alone can make clear to us the laws which govern the mysterious processes by which such marvellous results are brought about. The observatory is therefore, I think, a necessity, and it is under this conviction that I ask you to submit to your readers the question which commences this communication.

There are, it is true, many observatories in the market, but they are all, so far as I know, far too costly to come within the reach of the great majority of bee-keepers. If some kind friend can, out of his own experiences, show us how with a little ingenuity an old box can be converted and managed as an observatory, I am sure bee-culture will have advanced yet another step; and your *Journal*, which has done so much, and been so helpful in the past, will receive the warmest thanks of all interested.—Ebor, *New Barnet. 12th May.*

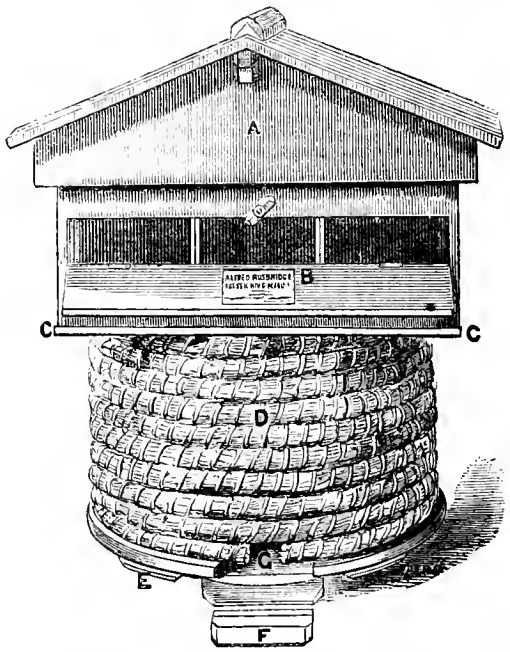
Reviews.

Bee-keeping, Plain and Practical: how to make it pay. By Alfred Rusbridge. (E. W. Allen, Ave Maria Lane.)

At a recent conversazione a reference was made to the obtuseness and non-progressiveness of the Sussex cottager, but we feel it to be our pleasing duty to express our indebtedness to two Sussex bee-masters for two of our most instructive and advanced works on bee-keeping. We are all familiar with Mr. Cowan's *British Guide-book*, which has passed through two large editions in a very short time; and now we have before us Mr. Rusbridge's *Bee-keeping Plain and Practical.* This is not the first time we have encountered Mr. Rusbridge in the fields of apiarian literature. In the year 1875 he produced his *Book for Bee-keepers*, which, having been for some time out of print, he has, in consequence of the rapid advancement in bee-culture since that time, considered it desirable to re-write the whole work. Mr. Rusbridge is a 'plain and practical' guide: he writes intelligently and to the purpose; and his exhibits at the various shows of bee appliances and honey prove that he can practise as well as he can teach. But Mr. Rusbridge is evidently of somewhat a conservative bent of mind; he clings to the use of the crown-board during the summer months; he fails to acknowledge any superiority in Ligurians over blacks; and he displays no curiosity to come in contact with the more recent imported varieties of bees. We are of opinion that his chapter on Driving might have been improved by a description of 'open driving;' and we would suggest that in any future edition of his work he should mention, in his account of 'close driving,' how essential it is that, when 'sufficient bees have ascended into the top hive to make a fair average swarm,' the driver should be assured that the queen-bee is in their midst.

Apropos to the newly awakened interest that has been taken in the skep and its improvement, we extract what Mr. Rusbridge says with regard to it, and he has kindly permitted us to accompany it with a representation of his Sussex Straw Hive with super and roof:

'If it be made flat-topped, with a three or four-inch aperture in the centre, it may be supered as easily as a bar-frame hive, and it may yield equally satisfactory results in the shape of well-filled supers of honeycomb. To begin with, an adapting-board must be placed on top for the super to rest on: this should be of half-inch pine, and of the same dimensions, as regards width, &c., as the super, and with the middle cut out, leaving a margin of about three inches all round. Standing on this, the super will be thus raised sufficiently above the crown of the hive to allow the bees to gain easy access to all parts of it. A roof on top will keep it dry. As a sufficiently spacious entrance-way cannot conveniently be cut out of the bottom edge of the hive to give ample room for the ingoing and outgoing of the bees during the busy time, it must, therefore, be taken out of the floor-board, this should not be less than four inches long, by half-an-inch high. Before use, neatly fit a moveable fillet of wood



into this space (see F, G, Fig.), to be inserted as soon as the season is over, thus contracting the size of the entrance to the three-quarter-inch square opening in the hive, which will be large enough for all purposes until summer again comes round. When the honey-harvest is over, remove the super and adapting-board, and the roof will shut down closely on the hive, thus forming a winter covering.'

We have had much pleasure in reading the two introductory chapters, 'Bees in Many Lands,' and a 'Sketch of the Natural History of Bees.' His supplementary chapters on 'Rustic Bee-keeping and Superstition' are highly amusing. We can confidently recommend the work to all beginners in bee-keeping.

The Cottage Bee-keeper. (*Norwich Tracts*, No. 134, S. Jarrold, Norwich.)—Inquiries are frequently made for a tract on bee-keeping which might advantageously be distributed among cottagers. We have much pleasure in recommending to district secretaries and others the tract the title of which we have given above. Its object is to show that bee-keeping is a useful pursuit, which gives a man a home interest, and which prevents the desire for seeking his pleasure abroad. The tract narrates, by means of a very touching tale, how a man was induced to forsake his drinking habits and to acquire a character for sobriety, diligence, and thrift. It calls attention to what the British Bee-keepers' Association has done for cottagers by the formation of Associations and the dissemination of cheap hand-books.

Lectures on Bees and Bee-keeping.—'Humane and Profitable Bee-keeping' was the subject of an interesting lecture delivered in the Town Hall, Sherborne, on Monday evening, April 2nd, by the Rev. W. E. Burkitt, of Buttermere, Wilts. Dr. Williams presided. Mr. Burkitt pointed out the advantages of the modern system of bee-keeping—the use of bar-frame hives, comb-foundations, the honey-extractor, sectional supers, &c., by means of which larger stores of surplus honey are obtained, much valuable time is saved, and bee-keeping

is made an interesting and profitable pursuit. He explained the method of making artificial swarms, and gave much useful advice to cottagers and others who wished to keep bees. He also spoke of the Bee-keepers' Associations that had been formed in Dorset and various other counties, and urged his hearers to join the local organization. Mr. W. H. Dunman, jun. honorary secretary of the Dorset Bee-keepers' Association, announced that an expert had been engaged in the county to visit cottagers and other bee-keepers at their homes, for the purpose of examining their stocks and giving advice. He hoped the clergy and others would do the utmost to help him in his work Depôts for the sale of hives and bee-keeping appliances had also been opened at Sherborne, Dorchester, Wimborne, and Blandford; so that the local apiarians would not now have to send away for what they required.—On Tuesday, April 3rd, the Rev. E. Burkitt lectured in the Town Hall, Blandford: and on Wednesday the 4th, at Gillingham. On all the above occasions the rev. lecturer explained the objects of the Dorset Association, and the advantages attached to membership, and expressed a hope that many of the inhabitants would join the Society.

Echoes from the Hives.

South Warnborough, Hants.—The first weeks in May have been very trying to bees, for the general inclemency of the weather compelled us, in this locality, to continue feeding. The milder weather since the 16th has altered the condition of our stocks for the better, for those with scarcely any brood at that date are now breeding freely. Drones are on the wing, and honey has begun to be stored. A few swarms are reported in this locality.—W. H.

Sussex.—Notwithstanding the previously fine weather of April, on the 24th we were visited with a snow-storm as severe as those we had in the month of March, and for nearly a week the wind blew steadily from the east. However, May is making up for past bad weather, and with variable winds the weather has been charming with a few growing showers up to about the middle of the month, when a heavy thunderstorm seemed to clear the atmosphere; and now summer seems to have set in. The yellow trefoil or hop-clover is just in full blossom, and the bees will soon make a show in the supers from that source. Our next crop will be sainfoin, and then the wild thyme, the honey from which scents the atmosphere around the hives during the time of a good flow. This year all field crops are rather backward, so that nearly all colonies will be in time to take advantage of the honey flow; and I sincerely hope that we shall not experience such a cool, wet summer as that of 1882. Last year, as soon as the wind stood to west-south-west, we had cold winds and showers, and the only honey obtained was while the wind was south-east. Thus far, this summer, it holds fine regardless of the direction of the wind, so I think we may safely consider that the elements are more settled, and we may expect a good season.—S. S.

Lincolnshire, Evedon.—After a long and cold time the warm weather has come, and bees are breeding well and gathering much pollen. I hope the hedges, which are large about here, will be white over with hawthorn blossom, as they were last year; but the frosts keep back the secretion of honey.—R. T.

North Leicestershire.—On the 9th and 10th of May snow fell, and the temperature on the former date did not exceed 40° Fahr. Matters improved on the 13th, and up to date (23rd) bees have had a good time of it, with the thermometer several times at 68°, and once (22nd) at 70°. The rainfall since the 9th has only amounted to ·64 inches. Apple, cherry, forget-me-not, dandelion, gilly-flower, and black-currant blossoms are affording abundant supplies just now, and the sycamores and chestnuts are coming on. Fourteen black bees, in the space of a minute, entered a hive here, which had been deprived of its black queen on October 4th, 1882. The stock, therefore, still has a goodly number of black bees *seven months* old.—E. B.

Foothill, Tisbury, May 14th.—Having just had a large quantity of hominy and maple sugar sent me as a present, it has struck me that a good bee-food might be made from the mixture. I merely offer it as a suggestion. I consider this, up to the present date, the worst spring we have had during the last five years. The weather has been so changeable that breeding has been checked, and many stocks have been starved, except where really a judicious system of feeding has been adopted. There is, however, a promise of a great bloom this year, so that with fair weather we may yet do well.—Ashton G. Radcliffe.

Somerset, Somerton.—The weather is now very warm, and to-day, the 16th, I hived a swarm from a straw skep for Mr. Snow, New Street; this is the first swarm I have heard of in our part of the county.—J. I.

Hereford, May 21st.—Fine weather set in on Monday, May 17th, and has continued. Apple bloom, although late, is simply magnificent, nearly every tree, even the old ones, being loaded with bloom; my hives have a nice quantity of brood and are gathering a considerable quantity of stores.—A. Watkins.

Reading, May 21st.—We have had fifteen days on which the bees did a full day's work since April 21st, and fourteen days they were either confined to their hives or only flew singly. Wednesday, May 16th, was the hottest day this year; bees were carrying in pollen at 6.30 a.m., and were flying at 7 p.m. Snow fell early on the morning of May 10th in very large flakes. My stocks are now in very fair condition, all being on eight frames and crowding the hive from end to end with brood in every comb. Drones were flying on May 15th from a straw skep for the first time; but there are none at my frame-hives yet, as I withheld drone-comb until about a fortnight ago. They have now a small patch each of sealed drones.—H. F.

Cornwall, May 21st.—April was cold and unfavourable in this part, and very little progress was made, and it was not until last week that warm spring weather visited us. Notwithstanding these unfavourable circumstances I have received reports of a few swarms having been secured. There is an abundance of fruit blossom, from which good stores of honey will, I hope, be secured for an annual show to be held at Truro next month.—Chas. Kent.

Essex, May 23rd.—Stocks have not recovered their proper form, and may be considered a fortnight late, few swarms have been heard of, and the absence of drones is remarked. Apple-blossom is plentiful, and there is an abundance of food everywhere. The weather now is all that we can desire, and I see no reason to regret my prophecy (March) of a good season for bees.—G. H. A.

Queries and Replies.

Query No. 597.—1. I have an Irish Combination Hive. How many frames ought I to confine the queen to, so as to keep up a plentiful supply of bees for working behind the excluder zinc?—2. Has the Standard Association frame any particular advantages over Abbott's Woodbury frame? If so, what are they?—3. On what conditions will bees manufacture a new queen out of brood, supposing them to have lost the old one by some chance or another?—M. C. B.K.A.

Reply to Query No. 597.—1. We should recommend

not less than eight frames; but the number of brood-frames should be regulated by the number of sections in use, the influx of honey, and the strength of the colony. —2. These frames vary so little in dimensions (merely $\frac{1}{8}$-inch in depth) that the capacity may be considered equal. Mr. Abbott claims for his frame that it takes the 1-lb. section more conveniently, but this may be readily adapted to the British Standard, and we think the latter has a decided advantage in the fact that it is coming into general use. The advantages of a Standard frame are so great, and have been set forth so fully in our pages, that we need not recapitulate. The absence of distance-guides from the Standard, so that each may use his own or one of general application, will render its adoption more universal.—3. On the loss of their queen the bees have the power of raising another, either from an ordinary worker egg, or larva, two or three days old. They generally prefer the latter by a wonderful instinct, since by so doing the young queen emerges from the cell several days earlier than would have been the case if a newly-laid egg had been selected. They will do this under all conditions, always granted existence of eggs and brood in the hive.

Query No. 598.—*Berberis.*—I have about three acres of pheasant cover entirely of *Berberis*, with yellow flowers growing in bunches, on which the bees seem very fond of working. Will you kindly tell me if there is much honey in this flower? 2. *Extent of Flight of Bees.*—Would my bees go about a mile and a half to gather honey off the heather?—E. J. B., *Abingdon.*

Reply to Query No. 598.—1. Both the *Berberis aquifolium* and *Berberis Darwinii* are great favourites with bees. They yield both honey and pollen. The *Darwinii* shows the phenomenon of the irritability of stamens; when the base of the filament of the stamens is touched, it immediately rises and strikes the pistils. 2. Bees will not go a mile and a half for heather if there is any more attractive pasturage nearer home. But in search of food they will sometimes go as far as three miles.

Query No. 599.—*Driving Bees.*—I had a swarm of bees on the 16th, and a very fine swarm it was indeed. I hived them in a straw skep. I sent more than a week ago for two bar-framed hives, but they have not come, and it will be a fortnight, or even three weeks, before they would be ready to receive bees. Can I drive the bees out of this straw skep into one of the bar-framed hives in a fortnight's time without injuring the bees?—An Anxious Bee-keeper, *Tunbridge Wells.*

Reply to Query No. 599.—As in driving bees it is not enough to rap the sides of the hives, but to jar the combs, and your combs being only a fortnight old, there would be great danger, in consequence of their softness and the slightness of the attachments to the sides, of their being broken and injuring the bees. At the present season of the year there is a great strain put upon the working powers of hive-manufacturers; bee-keepers should, therefore, foresee their possible requirements, and their motto should be, 'Always prepared.' We would advise our correspondent to accept his present position: let the bees continue in their skep, and, presuming it is a flat-topped one with a centre-hole, in due time place thereon supers, and the result will most probably be equal to that which might have been obtained from the proposed transfer.

Query No. 600.—*Observatory Hive.*—I have made an Observatory hive for one comb, and should like to know if the size will do. It is 16 in. wide, 13½ in. high, and 1¾ in. inside; and I should also like to know when to put the bees in, and the best way to start them.—H. C., *Solihull.*

Reply to Query No. 600.—The size of a single comb unicomb) Observatory hive of Association-sized frame should be $16 \times 9 \times 1\frac{3}{4}$. Bees can be put into it at once. To stock an observatory hive it is best to take a comb with bees and queen from a stock—one preferably a mile away from the place where the observatory hive is to be kept.

Query No. 601.—Can you inform me what the bees collect from the white daisy, so abundant in grass fields this month?—H. O. S., *Louth.*

Reply to Query No. 601.—The bees obtain from the daisy (*Bellis perennis*) honey and a yellowish pollen. It is not, however, much frequented by them.

Query No. 602.—1. *Uniting Casts by Fumigation.*—Having united casts by fumigation, and taking all queens but one away, sometimes I found they killed one another on coming to life, and in more than one instance killing the remaining queen. Would filling them with syrup before the puff-ball fumigation remedy the defect? 2. *Matting.*—Is it possible to use the enclosed piece of stuff for quilts to go next the bees?—F. M.

Reply to Query No. 602.—1. Before fumigating with puff-ball or narcotic of any kind, the bees should not be disturbed, but it should be done quietly, in order that the bees may not have a chance of filling their honey-sacs; neither should syrup be used in any form, otherwise the honey or syrup is disgorged, and the bees become a glutinous mass and invariably perish. In uniting casts, or second swarms, we advise you to discontinue the use of puff-ball, and in lieu thereof to use very thin syrup slightly scented with essence of peppermint or cloves, spraying the bees with a scent-diffuser, then uniting and leaving them to settle the question of queens for themselves. 2. The matting enclosed will do admirably for placing next to the bees, with the quilt over it.

Query No. 603.—1. *Chilled Larvæ.*—On examining my bees to-day, I find on the last but one comb of one side, in the centre of the comb, at the bottom of some of the cells, a substance (white) looking like a tiny smear of white paint. I feel guilty of having unduly stimulated before late cold in May. I fancy it is the maggots chilled and dead. Shall I let the bees clean it out themselves? The queen has laid no new eggs in these cells, though she has further down on same comb, or shall I spray it with salicylic acid? 2. *The May.*—Do bees gather honey from May? This is a single flower, but I have never yet seen bees on the flowers.

Reply to Query No. 603.—1. The appearance you describe is the larvæ just emerged from the eggs. It is possible that some may have perished from cold winds and frosty nights, the bees being unable to cover it. Do not spray it, neither interfere unnecessarily with the hive. If the stock is strong and populous, this fine weather will soon make all right. If weak, a frame of hatching-brood from another hive will be of great advantage. The cold weather has, no doubt, checked the laying of the queen. Continue gentle feeding until honey begins to come in freely. 2. The hawthorn or May (*Crataegus oxyacantha*) is much frequented by bees. They obtain a buff-coloured pollen from it. (See Echo from Lincolnshire, Evedon, p. 53, col. 1).

Query No. 604.—How soon may I begin to sow wallflowers and Limnanthes to get a succession of bloom next spring? And what interval should be left between the sowings?—F. A. S.

Reply to Query No. 604.—Sow wallflowers the earliest possible moment, and transplant before winter. Limnanthes should be sown, as it sows itself naturally after blooming, and when the seed is ripe, say July and August, sow thinly in rows a foot apart.

Query No. 605.—1. *Moths in Bar-frame.*—Will you kindly tell me in your next *B. B. Journal* how to get rid of moths in a bar-frame hive? The grub is in the

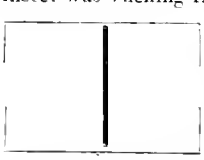
inches on top of the frame where the comb is fastened. 2. *Bees hanging out.*—When bees hang out on the floor-board as if to swarm, is the old queen with them? And could I swarm them off the board at once into a skep preparatory to putting them into a barframe hive?—E. B. L., *Worcestershire.*

Reply to Query No. 605.—1. In a strong colony, in this climate, the moth grub is never tolerated. We suspect, therefore, that your colony is weak. When the moth is in the pupa stage, the cocoons may be easily dislodged with a strong, sharply pointed needle and destroyed. A little salicylic acid solution (*Cowan*, p. 123), say half-a-pint with a teaspoonful of carbolic acid, brushed over the combs where the moth prevails will soon rid your hive of this pest. 2. No. The old queen never leaves the interior of the hive except to lead off a swarm. The hanging out of your bees is evidence of want of room. On a fine day the hive should be driven, and an artificial swarm made, if you wish to obtain a swarm (*Modern Bee-keeping*, page 37). If not, the hive should be slightly wedged up from the floor-board, to supply a current of air, and supers given at once.

Query No. 606.—*Several eggs in one cell.*—On page 187, January *Journal*, Mr. Haviland states that 'when he talked of hive bees laying several eggs in one cell, he was not referring to the queens at all, he was referring to fertile workers.' I was examining a stock of black bees a day or two since which was very strong, and I found in several cells two, and in one cell three worker eggs hatched, do you think that this would be the eggs of a worker, or is it, do you think, due to the prolificness of the queen?

Reply to Query No. 606.—In this case the fact of there being several eggs in one cell arises from the fertility of the queen, and from the cold, ungenial weather experienced of late. The bees, in order to keep up the necessary heat of the hive, have contracted the brood-nest, confining the queen to a small space; hence her fertility has resulted in this abnormal proceeding of depositing several eggs in each cell. The bees will remove all eggs but one, and will extend the brood-nest as the weather becomes warmer.

Query No. 607.—*Weak Hive.*—What is the matter with the majority of bees enclosed? The hive is very weak, and I have packed them up on four combs. I have not examined them closely to see if they have a queen or not, but if there she is old, as it was a first swarm last year. I noticed the base of a new queen-cell the other day and a lot of drone-comb. They have honey sealed, and have been fed with syrup, with addition of salicylic acid. Their wings appear shrivelled, and lots fall to the floor as they fly out. 2.—*A Beetle and a Bee.*—What is the insect enclosed? I noticed a bee struggling with it on the floor; and when caught the insect was sucking from the bee's side, as mark shows.



3.—*Marking entrance of Hive.*—How shall I do to get two stocks into a double hive on a stand, with the entrances as in sketch? Will the bees object to different appearance of entrance at side to that of one in front?—J. W. Eccles.

Reply to Query No. 607.—1. Your bees arrived in such a battered and pressed condition—as 'flat as calico'—that it was impossible by examining them to arrive at any knowledge of their ailment; but from the discoloration of the paper and your description of the hive, and the probability that it is queenless, we should attribute their death to dysentery. You will act wisely by removing it from the rest of your stocks and placing it in quarantine. 2. The insect enclosed is what is commonly called a rove-beetle (*Creophilus maxillosus*, order Staphylinidæ); the meaning of its specific name being 'flesh-lover,' it was only pursuing its natural vocation in desiring to make a *bonne bouche* of your bee. The poor insect, notwithstanding its being crushed in its transit to us, was still alive when it reached us; its antennæ were quivering and its mandibles were sawing the air. We can well conceive that a mark was left on the side of your bee if grasped by its strong hold. 3. If after placing the bees in the double-hive you create some temporary difficulty to their leaving, by placing boards aslant against the entrances, and plant boughs by the side of them, it will cause the bees to note and to mark the new position of the entrances, and very few bees will be lost.

Query No. 608.—1. *Bee-Farming.*—Do you think that a large apiary of some hundreds of hives would succeed in England as a speculation, as it does in America? 2. *Honey-yielding districts.*—Which county of England would be most suited to the experiment? I have inquired of bee-keepers and hive-makers, but I do not think they like people to compete with them from the answers given. —R. A. B., *Wallington.*

Reply to Query No. 608.—Although we do not think that large apiaries would succeed so well in this country as in America, where the bee flora is so abundant and grows so luxuriantly, with its glorious sunshine and salubrious climate, yet we believe that the capital that would require to be invested in such an undertaking would produce good returns in a properly selected district. Bee-farming is quite in its infancy at present in England; yet much has been done to prepare the way for it; a knowledge of bee-keeping has been widely spread by means of literature and the associations that have sprung up over the land. Given a thorough preparatory instruction in the theory and practice of bee-keeping in some school of apiculture, the possession of a certain amount of enthusiasm, a love of hard work, strict attention, and stern perseverance, we believe that bee-farming would succeed in England. 2. Our thoughts first turned to Lincolnshire, where bee-farmers love to congregate; but we were warned off by them, and directed to some of 'the southern counties of England.' A well-known expert informs us that South Wales,—preferably St. Clear's,—in his opinion, would be a most suitable district; and when we remember Messrs. Carr and Abbott's report of their tour in Ireland, we cannot err in recommending among other spots the neighbourhood of Wexford, where tons of honey were got in one season.

Query No. 609.—*Removing Bees.*—I want to put bees in straw skep into a bar-framed hive, and move them about fifteen yards, but as it cannot be done by degrees, I don't know how to manage. Could they be driven now from the skep and put into a bar-framed hive; make an artificial swarm in a few weeks, and then move the old stock to the distance required?

Reply to Query No. 609.—If, when you make your artificial swarm, you put it until the evening upon the old stand, removing the stock the fifteen yards, the old bees will nearly all join the swarm, and will remain with it when removed in the evening, with few exceptions. See reply to E. W. E.

Query to No. 610.—*Hatching in cold Weather.*—I transferred bees from an old plain box to bar-frame hive on 29th April. I placed the old box containing brood above the new hive with excluder zinc between. According to *Modern Bee-Keeping*, all the brood should be hatched out in three weeks. Seeing that these fourteen days have been bitterly cold and the bees scarcely working at all, will the brood be all hatched out in the three weeks, or will it require longer? and if so, how much longer must the box be left on before removal?—Doubtful.

Reply to Query No. 610.—The state of the weather will make no difference in the time of the brood maturing.

Query No. 611.—*Taking Bees from under Slates of a Roof.*—A neighbour has given me a stock of bees which

are under the slates of his roof. How can I best take them, and whether now or later in the year, and what time of day?—W. S. Medlicott, *Bishops Waltham.*

Reply to Query No. 611.—It is impossible to advise how to take the bees without surveying the position. As to the time, now, provided you choose the middle of a warm day and are careful not to get the brood chilled, will be better than when there are more bees to resent the operation. Unless you are pretty well experienced in handling bees you will find it a difficult affair to undertake, and had better apply to your County Association Expert, or to some experienced bee-keeper.

[It will be seen from p. 49, 'Combs Seven Feet Long,' that Mr. Medlicott has successfully overcome the difficulty that troubled him.]

Query No. 612.—*Moving Stock at time of Swarming.*—Will it lead to loss if, as soon as the swarm is hived, it be placed on the stand of the stock, and the latter be removed some distance away, and then in the evening both stock and swarm be removed to new positions a quarter of a mile distant? Will many bees go back to the old position?—E. W. E.

Reply to Query No. 612.—Your plan will probably prevent much loss, but the old stock will be seriously weakened by the flying (old) bees all joining the swarm placed upon the old stand.

Query No. 612.—1. *Hives among trees.*—Is it wrong, or at all injurious to bees, to place the hives among trees? The most convenient places in my grounds are planted with trees: beeches and firs chiefly, about 20 feet apart. 2. *Uncapping Cells.*—In parts of the *B. B. J.* I read that in spring feeding you are, in certain cases, to 'uncap' some of the cells with honey in them. What is the reason of this? If bees are in want of food, will they not be sure to uncap it without our help? 3. *Unsealed Honey and Dysentery.*—On examining my hives at the close of last month, I found one or two frames with a good quantity of honey unsealed. Is there anything wrong in this being so? Dzierzon says something about unsealed honey causing dysentery; but I cannot see why it should; and must it not always be unsealed before they can get it? And as long as there is honey in the frames, about this time, whether sealed or unsealed, can there be any use in feeding the bees, as commonly directed, with syrup? 4. *Chilled Brood.*—Some of these early May days have been here intensely bitter, with a biting north wind always blowing. I have sometimes taken out the frames, however, to examine the state of things; the hive being thus kept open for, perhaps, half an hour. Would this cause what is called 'chilled brood?'—S. L. B.

Reply to Query No. 612.—1. It is rather an advantage to have the hives sheltered by trees from the noon-day sun in summer, but they should get the whole benefit of what little sun there is in winter, and the line of flight should be free from obstruction by the trees. 2. Uncapping cells of honey early in the season stimulates the queen to lay, as the bees carry the honey from the uncapped cells, to which they are attracted by the smell, to the brood-nest. 3. The unsealed honey which you found in the frames at the beginning of last month was probably just brought in from early flowers, or might have been removed from other parts of the hive as above. The unsealed stores which, not only Dzierzon, but all other bee-keepers, know to produce dysentery, are those which are not sealed in autumn, and not properly evaporated down by the bees. Bees regulate their breeding not so much by the stores already in the hives as by the income, hence the importance of feeding although possessed of store. 4. Far too long. You ought to be able to ascertain all you want in ten minutes. Half-an-hour's exposure to the 'beasterly' winds we have lately had would almost certainly chill the brood.

NOTICES TO CORRESPONDENTS & INQUIRERS.

T. Major, *Folkestone.*—1. *Artificial Swarms.*—Your query has been answered over and over again in back numbers of the *Journal*, to which we must refer you, or to Abbott's leaflet on Artificial Swarming, price 1*d.*, post free. 2. *Swarms returning to hive, on destruction of the Queen.*—Yes, unless you gave them another or a ripe queen-cell.

F. West, *Stony Stratford, Bucks.*—We should conjecture from your description that your swarm of April 11th must have been what is termed 'a starvation swarm.'

Heliotrope.—*Balling the Queen.*—It is more than probable that the cause of the weak and moribund state of the hive was that the queen had fallen into a low and declining condition, and was unequal to her duties. When the addition of the new-comers was made, they took their 'measure' of her, and determined to supersede her, which they proceeded to do in their own effective manner. The former inhabitants of the hive, disheartened and demoralised, had neither the spirit nor the chivalry to resent the ill-usage of their former mistress. But we think the same result would have occurred with one frame of bees as with two.

A. E. C., *Alnwick.*—*Drone-laying Queen.*—Your queen laying only drone eggs is not due to the excitement arising from the union of your stocks in October last, but to the fact that she is getting worn out. It is often the case that queens, after showing much excellence as egg-layers for two or three years, lose their fertility, or become incapable of laying impregnated eggs; the spermatheca being emptied of its sperm-cells. Bee-keepers should know the age of their queens, and it should be a rule with them that queens should be superseded after a reign of two years.

W. Goodall.—The extract from Mr. Pile's work seems to recommend the well-known but objectionable plan of placing an empty hive under the stock, and when the bees have built into it removing it to form a separate colony. We cannot imagine how a month's time is saved by the operation, as the stock must be in swarming condition, or nearly so, before the plan is adopted. The objection to the plan is the undue proportion of drone-comb which is got in the new stock. Mr. Pile admits that drones are first reared, but says that is because the queen is one year old. When adopted with bar-frame hives, and with foundation, the objection does not obtain for obvious reasons. The plan is often recommended to those who are afraid to 'drive.'

Goonhilly.—The name of the plant forwarded is Ground Ivy (*Glechoma hederacea*), but a singularly smooth and compact specimen. It is sometimes called Gill or Gell. Bees visit many labiate plants, and this probably affords useful food.

Anon.—*Supering.*—Supers or section-boxes may be placed in the rear or on the top of hives, when they are full of bees, the honey abundant, and the weather fine. The reduction of the number of frames and the use of division-boards will sometimes induce bees to ascend to the supers. The plan adopted by Americans in storing surplus honey is the same as that in our country. The word 'supering' is not used by them.

A. Hinton.—The description of the bee forwarded is, 'The honey bee (*Apis mellifica*).'

Rev. J. Sibthorp, A. Hinton, and others.—Please find in 'Useful Hints' replies to your questions.

Corrections. Comb Foundation.—Page 27, paragraph 4, line 4, *for* have *read* hear; par. 5, line 3, *for* make and *read* may, and insert line 10 between lines 6 and 7. Page 28, par. 3, line 3, *for* one *read* our. End of article *for* Expert *read* Amateur Expert.

SHOWS AND BEE TENT ENGAGEMENTS.

June 19, 20, 21.—Worcestershire Agricultural Show.
June 20, 21.—Agricultural Show at Truro.
June 27.—Croydon District, Horticultural Show.
July 5, 6, 7, & 9.—British Bee-keepers' Association at Knightsbridge.
July 11, 12.—Lincolnshire. At Gainsborough, in connexion with the Lincolnshire Agricultural Society. Stephen Upton, Secretary.
July 16 to 20.—Royal Agricultural Show at York.
July 24.—Agricultural Show at St. Ives.
July 25, 26.—Leicestershire Agricultural Show at Melton.
July 26.—Waltham Cross Horticultural Show.
July 29.—Horticultural Show at Rockingham.
Aug. 14.—Clay Cross Horticultural Show.
Aug. 15 & 16.—Shropshire Annual Show at Shrewsbury.

BERKSHIRE ASSOCIATION.

June 19, 20.—Newbury (Marlborough and Pewsey Vale Agricultural Society).
July 25.—Colnbrook.
Aug. 16.—Reading.
Aug. 21.—Earley, Reading.
Aug. 23.—Burghfield.
Aug. 28.—Newbury.
Aug. 30. Wantage.

BUCKINGHAMSHIRE ASSOCIATION.

July 5.—Aylesbury Flower Show.
July 25.—Colnbrook and District Flower Show at Ditton Park.
July 26.—Winslow Flower Show.
July 31.—Buckingham Flower Show.
Aug. 23.—Chalvey Flower Show.

DEVON AND EXETER ASSOCIATION.

July 30.—Escot Park, Ottery St. Mary.
Aug.—Dawlish.
Aug. 9.—The Retreat, Topsham.
Aug.—Exmouth.
Aug. 23 & 24.—County Show on Northernhay, Exeter.
Aug.—St. David's, Exeter.

ESSEX ASSOCIATION.

June 13 & 14.—Essex Agricultural Society at Colchester.
June 28.—Brentwood.
July 13.—Audley End.
July 18. Maldon.

HANTS AND ISLE OF WIGHT ASSOCIATION.

June 26, 27, 28, 29.—In the Show Grounds of the Royal Counties Agricultural Society at Winchester.
Aug. 4 & 6.—At the great Summer Show of the Royal Southampton Horticultural Society at Southampton.
Aug. 23.—At the Bournemouth Horticultural Society Show.

HEREFORDSHIRE ASSOCIATION.

June 12, 13, 14.—Herefordshire Agricultural Show at Abergavenny.
July 16.—Eastnor.
July 21.—Bodenham.
July 23.—Rhayader.
Sept. 7.—Bridstow.

HERTS ASSOCIATION.

July 26.—Waltham Cross Cottage Garden Show.

KENT ASSOCIATION.

June 30.—West Kent Horticultural Show, Chislehurst.
July 3.—Rochester and Chatham Horticultural Show at Rochester.
July 7.—Eltham Horticultural Show.
July 10.—Bexley Heath Horticultural Society's Show.
July 11 & 12.—Blackheath Flower Show.
July 18.—Cranbrook Horticultural Show.
July 24.—Ash next Sandwich.
July 25.—Ashford.
July 26.—Lewisham Children's Flower Exhibition at the Priory.
Aug. 1.—West Malling Horticultural Show.
Aug. 2.—St. Mary Cray Horticultural Show.
Aug. 6.—Beckenham.
Aug. 8.—Tenterden.
Aug. 11.—Knockholt.
Aug. 23.—Sevenoaks Horticultural Show.
Aug. 29.—St. Peter's, near Margate.

NORTHAMPTONSHIRE ASSOCIATION.

July 10.—Uppingham Horticultural Show.
July 17.—Duston Horticultural Show.
July 19.—Rockingham Horticultural Show.
July 19.—Weston Favel Horticultural Show.
July 26.—Dallington Horticultural Show.
Aug. 6 & 7.—Northamptonshire Bee-keepers' Association Show, in conjunction with the Horticultural Show.
Aug. 6.—Oundle.
Aug. 28.—Long Buckby Horticultural Show.

SUSSEX ASSOCIATION.

June 21.—Chichester.
July 25.—Worth Hill.
July 25.—Dane Hill.
Aug. 8.—Hailsham.
Aug. 22.—Cuckfield.
Aug. 29.—West Grinstead.
Aug. 30.—Worthing.
Aug. 31.—Pulborough.
Sept. 5.—Isfield, near Uckfield.
Sept. 6.—Horsham.
Sept. 13.—Slindon.

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THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

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Editorial, Notices, &c.

THE COMING SHOW AT KNIGHTSBRIDGE.

Professor Cook, in the new edition of his *Manual*, says, 'Our English friends have demonstrated that large honey exhibitions are a most powerful aid in developing the honey market.' We are pleased to receive this appreciative testimony to the value of the shows which have been inaugurated in this country at the instance of the British Bee-keepers' Association from so worthy and so independent an authority. We are now fast approaching the ninth of these exhibitions, and it is of the utmost importance that the prestige of the past should be maintained in that about to be held, and that the cause bee-keepers have at heart may be greatly promoted by the coming exhibition at Knightsbridge.

The time for the show is earlier than in former years; but it has been so fixed that an opportunity might be afforded to those who may be in town at that time of being able to inspect the results of bee-keeping in the display of bees, hives, and honey. Though at one time the question arose in the minds of many whether the time fixed upon would not be too early for the display of honey; yet, the season being propitious and reassuring, everything appears to be tending in the direction of a most successful result. That this should be attained is the desire of all bee-keepers; and in order that it should prove so we feel justified in looking with hopefulness to secure the aid of all our apicultural friends; and we feel assured that if we have their approval and their cordial assistance, the object of the Exhibition will be gained, and the result will be such as will cheer the hearts of the Committee of the B. B. K. A. who have worked so laboriously and so self-denyingly in furtherance of the cause.

One great object the Committee have desired is that there should be a substantial display of honey. Might we request that not only those who have honey on hand at present, but that, forecasting the weather, many who have the prospect of obtaining it, will as soon as possible enter in the honey classes?*

The Committee have on this occasion put forth a most liberal schedule of prizes, with the expectancy that their desire to make the show general and comprehensive will receive encouragement, not only from bee-keepers, but from all who take an interest in the creation of a new home-industry in the country and who recognise in the promotion of this industry a pleasant and an easy way of ameliorating the condition of the rural population. We trust therefore that the Prize Fund may receive liberal support. Many of the subscribers have this year increased their subscriptions, and we hope that such an example may be generally followed. At present the whole amount subscribed is 16*l.* 16*s.*

We might suggest that the present affords a favourable opportunity to County Associations which are affiliated to the British to reciprocate the endeavours which have been made by the Parent Society for the encouragement of bee-culture in their respective counties. During the present year the Committee have been at a great expense in organizing the establishment of Associations. Lecturers have been sent to, and Associations have been formed in, two counties of South Wales, Bedfordshire, Huntingdonshire, Berkshire, Staffordshire, Somersetshire, and Gloucestershire. This work has not been accomplished without incurring a large expenditure. If the present show, as we have reason to expect, prove a success, it will help the Committee not only to meet the outlay in the past, but will yield them the sinews of war which will enable them to commence a campaign in those counties where they have not hitherto penetrated. We trust, therefore, that this appeal on behalf of the Prize Fund may be met by a generous response, and that the number of exhibitors in the respective departments may be as great as the most sanguine amongst us can desire. We hope that the exhibition may be such that we shall all be able to look back upon it with feelings of gratulation and pleasure; and that it will have the effect of creating in the minds of many an interest in the promotion of bee-culture, of still further 'developing the honey market,' and of giving a helping hand to a most interesting home-industry.—G. H.

* Under the head of 'Useful Hints' will be found some suggestions for intending exhibitors to which we desire to draw their attention.

USEFUL HINTS.

The Weather.—A month's uninterrupted fine weather has amply repaid those who were careful to get their stocks in order for the first honey glut, which, from reports that have come to us, has been a very heavy one. We hear of the extractor being at work and supers being filled with marvellous rapidity.

Feeding.—In localities where there is a lack of variety of flowers there will probably be a falling off in the supply of honey until the white clover and limes are in bloom. It will be wise to prevent the bees feeling the effect of this by feeding. Unripe honey may be utilised for the purpose if it has been extracted; and the bee-keeper will be recompensed, presuming we get favourable weather later on, by thus keeping the queen laying, and consequently maintaining the maximum of population.

Extracting.—You will probably find on examination that many hives have their brood-nest more or less filled with unsealed honey, especially those not supered, consequently the bees are comparatively listless and idle, and the queen has fewer opportunities for laying. Let this be corrected by extracting the honey from what should be the brood-nest, and put on supers to prevent its recurrence.

Time for Supers.—The time to super is when the hive is full of brood and bees, weather fine, and the income steady; to super without these conditions is worse than useless, and only tends to cause disappointment and to defeat the object sought.

Excluder Zinc.—Much has been said and written for and against excluder zinc, and certainly it has been used with varying results. We have seen sections fitted with them beautifully filled with drone-brood, and those without them as beautifully filled with sealed honey in worker comb. If excluder zinc be used the long-holed is preferable.

Removing Supers.—Supers once sealed cannot be too quickly removed, or the bees will discolour their delicate surface by heat and traffic and by strengthening the cappings with a stouter and darker material. We remove the sections one by one as finished, usually those nearest the centre, and put the partly filled ones in their place, inserting empty ones on the outsides; under favourable circumstances all should be filled in fourteen days. Some prefer a double tier to this method, as frequently none are quite finished and still the supply goes on; in such cases we prefer putting the empty ones on the top, as bees habitually work upwards from the brood-nest.

Stings.—Young bee-keepers, for whom our hints are especially intended, complain of stings: such will have observed when holding a frame crowded with bees, say while looking for the queen, suddenly the bees are violently agitated, and they are more than probably stung; this is caused by their breathing on the bees, or by their quite unconsciously jarring the frame. The great secret of handling bees is steadiness; accustom yourself from the first not to use gloves, and you will be far less liable to being stung.

Water for Bees.—Do not forget drinking fountains during this hot, dry weather.

Preventing Swarming.—Sometimes it is very difficult to prevent swarming. This is the case generally when the bees have felt that honey is coming in abundantly, and they are in want of room. During this month bees have been bringing in honey in large quantities, filling every available cell in the brood-combs. As a consequence, queen-cells have been constructed, and the bees have made preparations for swarming. Swarming may be prevented at such times by giving bees room in advance of their requirements, by giving them supers and extracting the honey from brood-combs. When any queen-cells are found they should be cut out. If the combs are filled with brood some may be removed and given to other hives. Give plenty of ventilation. If hives swarm whilst supers are on take away all the brood-combs, brush the bees back into the hive, fill the hive with empty combs or comb foundation, return the swarm and put on the supers. This will generally stop any further inclination to swarm, and work in supers will be continued.

Exhibiting at Shows.—Exhibitors should make their entries early, two or three days before the time named for closing. Careful attention should be paid to the rules of the show. If the exhibits are intended for sale the price should be stated on the entry form, in order that it may be inserted in the catalogue; when comb honey is priced at per lb. the weight should be marked on each section; it is best to state price at per section. The price of run or extracted honey always includes the jars which contain it. Care should be taken to attach the correct labels to each exhibit; it is of great importance that these labels should be addressed on the back for the return journey. In case the exhibitor requires additional labels, he should write copies similar to the one sent. It is a good plan to enter the number of the exhibit on each jar or section; no other mark of ownership should be placed upon the exhibits. Hives should be packed in a simple way, and the crate should be marked with the number of the exhibit in one or more places.

Planting Honey-producing Plants.—As a result of the awakened interest that has recently been taken in bee-culture, and in apiarian enterprise generally, it is desirable that more attention should be paid to the cultivation of honey-producing trees, shrubs, and plants. And this is the more urged on our minds by the remembrance that those woods and forests which at one time covered the land, and which afforded such abundant forage for bees, have in the course of time been considerably reduced in extent, and those rural hedgerows which have been so familiar to our sight are ever being swept away before the inroads of population and the increased breadths of cities and towns. It is therefore incumbent on all bee-keepers to provide, by special study, in the vicinity of their apiaries those honey-secreting plants which are necessary for the sustenance of their stocks. To facilitate the acquirement of a knowledge of the qualities of such plants, we shall be glad to give space in our columns to the experience of apiarists who are ever seeking for new sources from which honey can be obtained. In such cases, besides the names of the shrubs, &c., it would be desirable to know the soil most adapted to their growth, their time of flowering, and other particulars of their culture. Such contributions would, we consider, be extremely valuable, not only to those who receive, but also to those who impart, the information, as it would oblige these latter to study the capabilities of Nature, and would disclose to them a wider and a loftier view of the great Creator's power.

Gainsborough Show.—We would just hint to intending exhibitors at the meeting of the British on the 5th, 6th, and 7th July, and the Royal at York on the 16th to 20th, that by exhibiting at Gainsborough on the 11th and 12th they might pick up a crumb on their way —the days fit route—from the South direct.

BEES AND FLOWERS.

I was interested in noticing in one of your local spring reports that bees were resorting to dandelion and chickweed, and subsequently another correspondent spoke with hopeful anticipation of the promise of a full blossom of hawthorn in the hedges. Remarks like these are of value, showing how far and closely our native plants are laid under contribution by bees. It occurs forcibly to me that resort to such of our native plants as I have mentioned is rather from necessity than choice, just as our early ancestors made meals of acorns and wild raspberries, but the ability to procure better food leads us to reject certainly the primitive acorn. So with bees afforded the opportunity of obtaining superior pasturage, the wild flowers mentioned above are disregarded with more tempting fare before them; even the may bushes have been comparatively neglected.

Until we can offer flowers in great variety, giving bees the choice of selection, we can scarcely yet pronounce with confidence on the relative merits of the particular

kinds. The quick discovery of honey-yielding plants of recent introduction shows a power of adaptation and an aptitude in taking advantage of circumstances now furnished them that gives them a position amongst clever insects.

Extending my collection of bee-flowers and being near extensive tracts of woodland, orchards, and cultivated ground, I have opportunities of observing the trees, shrubs, and flowers specially visited by bees, and their preferences where the choice is varied is a matter of much interest.

During the month of May the trees and shrubs that were assiduously visited were the Norway maple, sycamore, holly, singularly attractive, Snowy Mespilus, apple, plum, berberis, the seed-beds blooming abundantly of turnip. Rape and various Brassicas greatly attracted bees; Limnanthes alone, amongst lowly flowers, diverted the bees from the more tempting pasturage I have enumerated above.—W. Ingram, *Belvoir.*

CHEAP HIVES.*

On consideration and further trial since I wrote on cheap hives, I think it will be best to use a gauge 14½ in. to get the inside measurement of hives, and my plan will never, I think, give less space, and it may give a a trifle more.

Making hives out of boxes, one's mind must be made up for a lot of trouble, and contriving, and cobbling.

With regard to mode of keeping frames apart, on consideration and trial it will be necessary to use some means of adopting wide shoulders if the seventeen-inch top bar is to be used; this length allows of great loss of heat, but if a 15½ top bar were used there would be no more than in a wide-shouldered frame. If the end of the bar comes against the outside wall there is great likelihood of escape of heat, as the quilt is difficult to make fit just there, but there is no such danger with a broad-shoulder as the quilt lies flat and close upon it. The end of a wide-shouldered frame should be also protected by coming against the outside wall, or, what is better still, the hive walls should be so thick as to have the outside wall some distance from the frame end, and this space filled up with a lath, and this would give extra thickness where the heat is so much more liable to escape. Some hive-makers give thick double walls, and at this very part don't even give a simple wall, but have a rabbet cut out of the frame to form the lateral distance-keeper, and the runner is the only means of keeping in the heat.

A hive-maker of Co. Wicklow has been selling hives of this make, and the rabbet is so constructed as to cause great propolisation, and in fact the frames will be fixtures, and next they do not act as distance-keepers as the frames move laterally very much ('waggle,' as a lady expressively called it), and the frame-ends in some instances nearly touch the hive side at one end, and at the other leave half an inch space. A cheap form of the above has been brought out, the means to keep the frames from lateral movement being a French nail driven across the angle under the shoulder of the frame; and when a dealer here, at my suggestion, objected to the hives being so radically defective and such patents for crushing bees, the hives were then sent with a common black tack driven into the side bar of the frame to keep them from touching the side-wall! Ingenious, but rather an unscientific notion. I need not point out the absurdity of the 'new idea.' Notwithstanding the nails and black tacks the frame 'waggled' enough to make the late Mr. Woodbury turn in his grave with horror. These hives have won several second prizes under competent judges in Ireland, but these, I need hardly say, were got up very differently. I think this is a matter for consideration by our Irish Bee-keepers' Association, as hive-makers should be looked after outside the shows.—J. Crosbie Smith, *Hon. Sec. Cork B. K. A., Passage West, Cork.*

* Erratum—In the issue of May 1, page 4, second column, line 17, *read* c. c. *instead of* E. E.

In the timber trade six boards cut of a deal are called 'half-inch,' but are really ⅝, and five cut of a deal are called ⅝, but are only ½-in. truly.

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

Committee Meeting held at 105 Jermyn Street on Wednesday, June 6th. Present—T. W. Cowan (in the chair), Rev. E. Bartrum, Hon. and Rev. H. Bligh, Captain C. D. Campbell, J. M. Hooker, D. Stewart, W. O'B. Glennie (Treasurer), and Rev. H. R. Peel (Hon. Sec.).

A letter was read from Mr. Jonas regretting his inability to be present, and stating that he had obtained Lord Rosebery's permission to use the vacant land adjoining the Riding School at Knightsbridge for manipulations in the examination of candidates at the forthcoming show. It was resolved that the examination of candidates should take place on Saturday, July 7th, commencing at 8 a.m., and that an entrance fee of *5s.* be charged to each candidate. The rules and regulations for the examination were submitted, approved, and ordered to be inserted in the next issue of the *Bee Journal.*

Resolved, that the judges for the forthcoming Annual Show be selected from the following gentlemen:—Rev. W. E. Burkitt, Hon. and Rev. C. Fielding, Rev. J. G. Dangar, Messrs. W. H. Dunman, R. R. Godfrey, W. N. Griffin, J. P. Jackson, C. N. Abbott, J. N. Bower, J. H. Martin, G. P. Cartland, E. Daw, C. E. Fletcher, H. Bostock, P. H. Phillips, G. Walker, F. R. Jackson, and W. Carr.

It was resolved to ask the following gentlemen to give addresses and instruction in the art of bee-keeping:—Mr. F. Cheshire, Rev. J. G. Dangar, Rev. J. L. Seager, Rev. T. Sissons, Rev. H. V. Moyle, Mr. C. Brown, Mr. G. St. John, Rev. E. Davenport, and Dr. Benthall.

The next meeting of the Committee was fixed for Wednesday, June 27.

Donations to Prize Fund.

	£	*s.*	*d.*
Amount previously acknowledged .	11	1	6
Messrs. W. and T. Sells . . .	0	5	0
Miss E. Preston	0	10	6
F. R. Jackson, Esq.	1	1	0
Rev. J. L. Sisson	0	11	0
Rev. A. Leakey	0	4	0
Thos. W. Cowan, Esq. . . .	1	1	0
Rev. H. R. Peel	2	2	0
	£16	16	0

Regulations respecting Certificates as Experts.

1. Examinations of candidates for such certificates will be held annually in connexion with the Annual Metropolitan Show of the Association, and at such other times as may be appointed by the Committee for the purpose.

2. Candidates desirous of obtaining certificates shall enter their names with Mr. J. Huckle, King's Langley, Herts, the Assistant Secretary, and pay *5s.* entry fee towards the expenses of the examination, at least a week before the time appointed for the examination; and at the same time shall supply a statement of their age and

previous experience in bee-keeping, together with satisfactory testimonials of character, especially on the following points—viz., honesty, sobriety, good temper, orderly conduct, cleanliness, industry, and attention to details of duty.

3. The examination will be conducted by examiners appointed by the Committee of the British Bee-keepers' Association; and the certificates, which will be of the First, Second, or Third Class, will be awarded by the Committee upon the report of such examiners according to the proficiency displayed at the examination.

4. Candidates must attend at the time and place appointed, and submit themselves to the prescribed test.

5. The test shall consist of an examination, partly by verbal questions and partly by paper work, in the principles and practice of Modern Bee-keeping. (For syllabus of subjects of examination see below). The books recommended for study are—1. *Modern Bee-keeping*, published for the British Bee-keepers' Association by Longman and Co. (6*d*.). 2. *The British Bee-keepers' Guide-Book*, by T. W. Cowan, published by Houlston and Co. (1*s*. 6*d*.). *Cook's Manual of the Apiary*, and *Root's A B C of Bee Culture*, which may be had of Mr. J. Huckle. (For prices see advertisements.)

6. They will also be required to show their proficiency in driving bees, transferring bees and their combs, artificial swarming, and in the use of straw skeps, moveable frame-hives, and other bee appliances, and in the general principles of hive construction. For First and Second Class Certificates they will also be required to deliver a short explanatory lecture on a subject to be fixed by the examiners. For First Class Certificates they will in addition be required to give an extempore lecture on modern bee-keeping of twenty minutes duration.

7. Papers containing thirty questions graduated from elementary to advanced subjects will be given to each candidate. Three hours will be allowed for writing the answers.

8. The certificates shall be good for a period of five years, but shall be liable to be forfeited on proof of dishonesty or misconduct; and of the sufficiency of such proof the Committee shall be the sole judge.

9. Before taking up their certificate the candidates shall sign their submission to these Rules.

10. Recipients of Second and Third Class Certificates may try for a certificate of a higher class at any subsequent examination.

SYLLABUS OF SUBJECTS OF EXAMINATION FOR 1883.

1. Natural history of the honey-bee, including class, order, family, genus, species, varieties, &c.

2. Anatomy and physiology of honey-bee, including transformations, eggs, larvæ, pupa, imago stage, &c., queens, drones, neuters, &c.

3. Products of bees, their origin and functions.

4. Swarming—its causes, objects, methods, and varieties, with explanation of operations and uses, prevention, &c.

5. The apiary—its care and management, inclusive of various styles of hives, houses, varieties of bees most desirable; economy, purchasing, &c.; transferring, feeding, and feeders; queen-rearing, nuclei, increasing colonies, dividing, doubling, queen introduction, various cages for and methods of, &c.

6. Extractors—varieties, uses, methods, and operations, &c.

7. Handling bees or manipulating—full description of various methods; varieties of smokers, &c.

8. Comb-foundation—varieties of and manner of fixing in brood-frames and supers or sections of all kinds; machines for making, &c.

9. Honey-plants and trees, or bee flora—most valuable kinds, and seasons of blooming.

10. Wintering bees, various systems, both at home and abroad, with their advantages or disadvantages.

11. Difficulties of bee-keeping—robbing, diseases, remedies, enemies, &c.

12. Calendar of operations for each month of the year, with any short terse axiom you would lay down for general success.

The second examination will be held at 17 High Road, Knightsbridge (opposite the Duke of Wellington's Riding-school), on Saturday, July 7, 1883, commencing at 8 a.m. If necessary, the examination will be continued on Monday, 9th July, at 8 a.m.

The Library.—The Librarian desires to acknowledge with thanks the receipt of the following books:—

From Mr. J. Camaschella: Il Polline e l'Ape. Per Giotto Ulivi. 1880.—By the same author, Le Api non transportano le Uova. 1879, Torino.—Le Api Operaie transportano le Uova? Torino, 1878.—Compendio teorico-pratico d'Apicultura Razionale. Firenze, 1882.

From Mr. J. S. Wood, Nyborg, Denmark: Der Elsässische Bienenzüchter, 1874; Do., 1873, 1875, 1876. Strasburg, 1874, &c.—Handbuch der Bienenzucht, oder vollständige Anleitung zur naturgemass-rationellen und einträglichen Pflege der Honigbiene in allen praktischen Stockformen. Von Friedrich Wilhelm Vogel. With 140 illustrations. Berlin, 1867.—Die Biene und ihre Zucht. Von Georg Kleine. Nienburg, 1864.—Lehrbuch der Bienenzucht. Von G. Dathe. Bensheim, 1875.

From Mr. A. Cockburn: The Scotch Bee-keeper: A Treatise on the Profitable Management of Bees. By A. Cockburn. Cairnie, 1875.

From Mr. S. Simmins: Facts for Bee-keepers: The Simmins Method of Direct Introduction. By Samuel Simmins. 1882.

From Mr. A. Rusbridge: Bee-keeping: Plain and Practical; how to make it pay. By Alfred Rusbridge. London, 1883.

The following works, acquired by purchase, &c., have been added to the Library:—

Otto Helmer, F.I.C., F.C.S. On the Composition and Analysis of Wax. I. Yellow Wax. London, 1883.—Robert Maxwell, Gent. The Practical Bee-Master; or, a Treatise wherein the Management of Bees is better and more particularly directed than in any book hitherto published. Second edition. Edinburgh, 1750.—T. M. Howatson. The Apiarian's Manual; containing all that is important in the Natural History of Bees, or useful in their Practical Management. Edinburgh, 1827.—Bibliographie Universelle d'Apiculture, recueillie par ordre de Mr. Auguste de Keller. Milan, 1881.—G. D. Haviland: The Social Instincts of Bees: their Origin by Natural Selection. 1883.—Rev. W. E. Burkitt: How to teach the Cottager Bee-keeping. 1883.—Rev. H. R. Peel: Who *is* the *Bonâ-fide* Cottager? 1883.—The Cottage Bee-keeper (Norwich Tract Temperance Series). Norwich.—French Diagrams, illustrative of the Honey Bee.—Californian Bee Pastures. From the *Century*, Nos. 1 and 2, 1882.

COUNTY ASSOCIATIONS.

BRIDGEWATER SHOW.

It is to be regretted that neither the Council of the Bath and West of England Agricultural Society, nor the Local Committee at Bridgewater, could undertake to make a grant towards an Exhibition of Bees, Hives, Honey, &c., in connexion with their Annual Exhibition. The bee department is always one of the most attractive and instructive features in the show ground, and is productive of much good to many who visit it. The Committee of the British Bee-keepers' Association determined not to let the opportunity pass of holding an exhibition in the Western Shires, more especially as negotiations were

going on for the formation of a Bee-keepers' Association for the County of Somerset. After much labour and correspondence the West Street Schools were secured for the purpose. The rooms were admirably adapted for the purpose, and the exhibition was one of the best ever seen out of London.

Collections of goods were sent by Mr. S. J. Baldwin, Bromley; T. B. Blow, Welwyn; E. J. Butt, Barnstaple; H. Money, Exeter; C. Overton, Sussex; and Messrs. Richards & Honey, Exeter. In this class, which formed the principal feature of the Show, the first prize was awarded to Mr. T. B. Blow; second, Messrs. Richards & Honey; third, Mr. S. J. Baldwin; Mr. Honey, Highly Commended. First and second prizes for observatory hives were also awarded to Mr. T. B. Blow. In the classes for hives at 15*s.* and 10*s.* both first prizes were awarded to Mr. S. J. Baldwin; the second and third to Messrs. Richards & Honey, C. Overton, T. B. Blow, and A. Blake. The show of honey was rather small, but the quantity exhibited was shown in the most tasteful form. Messrs. T. W. Cowan, the Rev. P. M. Filleul, W. N. Griffin, Captain Gilbert, W. H. Dunman, and Rev. H. R. Peel (Hon. Secretary), were in attendance to give advice and instruction to visitors.

SOMERSETSHIRE ASSOCIATION.

This Association made considerable progress during the time of the Bridgewater Exhibition. Owing to ill-health the Rev. Walter Hook has been compelled to resign the Hon. Secretaryship, which he was kind enough to take *pro tem.* The Rev. C. G. Anderson, of Otterhampton Rectory, near Bridgewater, has been appointed Hon. Secretary, and we trust that every bee-keeper and other residents of Somerset will send in their names to him as members on as early a date as possible.

Foreign.

KARLSMARKT.

De. Dzierzon on the Introduction of the Italian Bee.—The 13th February last was the thirtieth anniversary of the arrival of the first Italian colony of bees at Karlsmarkt, an event both interesting and of great and lasting importance. Of that colony which I received from Mira, near Venice, there are still some pure descendants in existence, not only in my own apiary, but also in many other places, which is evident from the fact that the prize judges at Neustadt, near Vienna, declared the queen of the small colony exhibited by me to be the finest there, although Mr. Günther, Mr. Hucke, and others had sent some beautiful queens to this exhibition.

Since the introduction of the Italian variety bee-keeping, which in itself is a most agreeable occupation, has had twice as great a charm for me as formerly, and has afforded me far more pleasure, as the difference in colour between the native and the newly-introduced races allowed some most interesting observations to be made. The yellow Italian bee, being so gentle and so little inclined to sting, that many operations which do not absolutely require the bees to be driven away from certain places in the hive, can be performed without the application of smoke, and this very much enhances the pleasure of handling bees.

In the neighbourhood of hives of common bees, it is certainly somewhat difficult to keep the race pure, still it can be done with some amount of certainty by raising a large number of yellow drones at a time when no drones have made their appearance yet in hives of common bees, or by reserving drones in queenless stocks after all other colonies have expelled theirs, while at the same time young queens are reared to make their excursions at the period mentioned from April till May, and August till September. At the time when drones are about in large numbers, we may induce the yellow drones and queens to play before the hive at a time when the drones of other hives still remain at home, by inserting into the entrance a little diluted honey or sugar. Instead of shutting up the respective hives and thus preventing the bees from flying out until late in the afternoon, as advised by Mr. Köhler, my advice is to induce them to leave the hive somewhat earlier in order that the impregnation of the queen may possibly take place before the drones of other colonies commence leaving their hive in large numbers. After a splendid morning we sometimes have a thunderstorm and the weather changes, which may delay the impregnation of the queen for days, and even weeks. More especially during the cool season of the year in April and again in September, every favourable moment about midday should be taken advantage of. Another fine day might not happen for some time, in which case the queen would remain infertile and being valueless might have to be destroyed. In the height of the summer queen-bees take long excursions and may possibly meet with drones from a stock more than five miles distant. There is a simple means of preventing this and of keeping them in the neighbourhood of their own hive. It is only necessary to clip their wings a little so that they can only keep on the wing with difficulty. This does not prevent their being fertilised, on the contrary it seems to accelerate it, as the drone, which certainly is the attacking party, can catch her more easily and accomplish the act of fertilisation. I have had several queens who had such short wings that they appeared to me incapable of flying, which however was not the case as they all became fertile very quickly and their offspring turned out to be perfectly pure Italians.

If a bee-keeper, taking advantage of the different artifices I have referred to, raises a considerable number of queens, he cannot fail to find some among them which have been impregnated by Italian drones. But what any one secures by his own exertion and skill possesses for him a far greater value and gives him much more pleasure than what he gets without trouble, and from no endeavours of his own. I do not know of a more pleasing sight than watching at midday the first generation of a young queen flying out for the first time and to find from the uniformly beautiful appearance of the young bees that their mother has been impregnated by an Italian drone.

That the Italian bees have done much to advance the theory of bee-keeping is universally admitted. Some points which were previously much questioned, and which people would perhaps have disputed till now, they have helped to clear up and an end has thus been put to all further dispute. But there are still some people who will not admit that the Italian bees are also of considerable practical importance. I am sure, however, they are in the wrong, for as practice is only applied theory, and whatever advances the latter must indirectly advance the former also, any correction and enlargement of the theory of bee-keeping must necessarily be followed by a more correct and common-sense management of bees.

But it cannot be denied that even the direct practical value of the Italian bees is greater than that of our native bees; while it is necessary to use a smoking apparatus continually in order to suppress during operations the outbursts of rage on the part of the irritable black bees, everything can be done with ease and comfort and in half the time in hives of Italian bees. The discovery among worker-bees and removal of a queen, which is so frequently necessary, does not take up one fourth of the time if she is of the Italian instead of the black variety. Italian queens are not afraid of the light and do not run away so quickly as black queens, which when disturbed generally escape into the farthest corner of the hive; moreover, the bright colour of an Italian queen is so

striking that even a person not very quick-sighted cannot help noticing her at first sight.

When a change of colour occurs in young bees we may safely conclude that a change of queen has taken place, and may save ourselves the trouble of ascertaining this by difficult manipulations.

Having occasion to examine the stores of a colony in a distant apiary last spring, I discovered that the queen which was at the head of this stock three years previously when it was driven into this division of the hive, was still alive, although I thought she had been superseded by a young queen some time before. She moved but slowly, but her brood-nest was in excellent condition. I first thought of removing her, but it was well I did not carry out my intention as the colony raised an unusually large population, and the bees were so industrious that even the division of the hive for the storage of honey was filled with honey-comb; which was the case in only a few hives at the end of the bad season last year. Later on I should have liked to have removed the old queen, but had to give it up, as the large number of bees in the hive and the enormous quantity of honey which they had accumulated would have made this a most difficult and tedious operation. Soon after, however, I became convinced that the bees without any assistance on my part had reared a young queen, possibly while the old queen was still alive. I noticed that the young bees which made their appearance were differently coloured, for awhile the offspring of the old queen were all yellow, the young bees now hatched were partly yellow and partly grey, showing the young queen to have been impregnated by a black drone, as frequently happens when there are stocks of common bees in the neighbourhood of Italian colonies: without having seen the young queen I am perfectly convinced of her presence in the hive.

But the principal advantages of Italian bees which nobody disputes consist in their being more industrious and accumulating more honey than other varieties, which is particularly noticeable after a bad season, such as we experienced last year. The superior qualities of the golden-coloured bees which Virgil extols in his poem on Agriculture have been fully corroborated in my apiary during the thirty years which have passed since their introduction, and which will doubtless be acknowledged as long as we shall have black and yellow-coloured bees. —Dr. Dzierzon, *Nordlingen Bienenzeitung, No. 5.*

AMERICA.

Importing Queens from the Orient.

During last summer I was very sick; indeed, at three different times during the year, my life was despaired of, and, of course, I did not rear as many queens as I had hoped to be able to. But I think the season's showing is fair, considering the peculiar difficulties under which one must labour in cultivating bees in the Orient; and the fact that the 'Mount Lebanon Apiary' had to be wholly created after I came to Beyrout, at the beginning of last year, which latter fact should be noticed, since parties in America stated in 1881, that the apiary had already been established at Mount Lebanon. It was during my first illness in 1882 that Mr. T. B. Blow, of Welwyn, England, called on me in Beyrout, having previously visited me in Cyprus, where I left him when I came to Beyrout to start the apiary there. He alone is capable of understanding the numerous difficulties with which I had to cope at that time. As soon as possible earthen pots and cylinders containing bees were purchased to start up the new apiary, and the work of transferring colonies, rearing and shipping queens, began. It was at this time that the weather was unfavourable, cold rains, then later warm rains, with bright warm sunshine between the driving showers. In June I was very sick with cholera morbus again. In July came the sad loss of our only little one. Following this was a serious attack, resulting, the physician said, from too great exposure to the fierce tropical heat of the sun in Cyprus in preceding years.

We had been obliged to 'flee to the mountain' on account of the condition of my health, and the Moslem outbreak in Beyrout. The cool air of the upper Lebanon did me good, and as soon as it was safe I returned to my work. Notwithstanding these interruptions, I was able to send out during the season of 1882 queens to the number of 340, and three full colonies (a small amount of honey and wax were also sold). Of these, 179 were addressed, by express, directly to Mr. D. A. Jones, of Canada, while a number of the rest were sent by mail to parties in England, who, it was expected, would forward a portion of them to Mr. Jones. From the latter I never received any definite statement as to how many of these queens were safely received, but only the assertion that many failed to get through. The cause of poor success in shipping those sent by express was greatly owing, I believe, to the method of shipping prescribed by the gentleman just mentioned. The only shipments to America made during the past three years that have been eminently successful were two lots (one of thirty queens in 1881, and one of forty-two queens in 1882), put up in accordance with the plan I proposed upon first landing in Cyprus in 1880. I have met with fair success, sending queens from Cyprus and Syria by mail to different parts of Europe, except when, this last year, some forty fine Syrian and Palestine queens were seized in London, and sent to Paris (having been mailed at a French post-office in Syria), after which I got them back at the end of about six weeks all dead!

I sent the first queens by mail from Cyprus to Europe in June, 1880, as can be seen by reference to the *British Bee Journal* for July, 1880, where the method employed is described and the cage illustrated. With this form of cage as a basis, changing from time to time conditions of putting up to suit the season of year, and as further experience suggested, I think I have, with the help of one modification suggested by a friend in England, succeeded in finding out how to be successful in sending queens from the East to distant lands. It must be borne in mind that it is a journey of 3000 miles, 1500 of it by sea, in a sub-tropical climate, where hot desert winds are particularly trying for the bees, which are buried in the ship's hold, under tons of other mail matter.

During the coming season I shall try to send some queens by mail from Europe to America. I believe I would have succeeded in doing this last year had not the forty queens been seized in England; for some of these packets were experimental ones addressed to Mr. D. A. Jones. Some of the English postal regulations are very troublesome, and among these is that which excludes queen-bees from the mails. The bee-keepers of England ought to protest *en masse*, and keep protesting until permission is granted to send queens by mail. This is surely one reason that has tended to make the introduction of Italian and other improved bees very slow in England. Our British cousins, so progressive in many other respects, have not even a packet post, without which we would hardly think we could get along.—Frank Benton, *Athens, Greece, March* 30, 1883.—(From the *American Bee Journal.*)

The Bee as an Imperial Emblem.—According to Dr. Cobham Brewer, the origin of the bee as an imperial emblem in France is found in the historic tradition that more than 300 golden bees were found in the tomb of Childeric, when it was opened in 1653. From this time the royal mantle and standard of France have been thick sewn with golden bees instead of Louis flowers. The modern opinion is, that what we call a fleur-de-lis is a bee with its wings outstretched. Again, these bees are now generally believed to be the fleurons of horse-trappings, and quite independent of the emblem.—*The Oracle.*

Correspondence.

*** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

All Correspondence must bear the name and address of the writer, not necessarily for publication, but as a guarantee of good faith.

ANGLO-CYPRIAN HIVE.

The following extract from a letter from Mr. Frank Benton may be of interest:—'By the way, if you had been somebody else—a stranger to me—I would have given you a "hard rub" in *British Bee Journal* on your "Anglo-Cyprian Hive." Why, friend Blow, somewhere fifteen years ago exactly that bee-hive was invented and patented in the United States by a very well-known bee-culturist (Dr. U. S. Conklin, of Ohio). It was called the "Diamond Hive;" this, I suppose, because the square frames, standing cornerwise, looked diamond-shaped. At the State Agricultural College of Michigan I handled bees in them in the year 1870!'—Thomas B. Blow, *Welwyn, Herts.*

It is somewhat amusing to notice the anxiety with which hive-makers vie with each other in introducing any hive that is likely to catch the inexperienced and the amateur bee-keeper in the way of novelty.

It is not unfrequently the case that an old invention which has been tried, found unsatisfactory, and lost sight of for years, is, with some slight modification or addition, brought before the public, with a new and attractive name, promising great advantages to those who will purchase and try it.

If you will allow me a small space in your most valuable Bee paper, I will endeavour to show that the Anglo-Cyprian hive is a very old friend under a new name, the principal addition being that of its legs. The interior arrangement, shape of frames, and the mode of using sections, being precisely the same as in Dr. Conklin's Diamond hive, and similar to that of Dr. Price, both American inventions. The exterior only resembling Major Munn's hive.

'G. S.,' on page 32 of this year's *British Bee Journal*, who congratulates Mr. Blow upon his *happy thought* in the Cyprian hive, says it is sound in principle and '*will be the hive of the future.*' 'G. S.' in saying this was evidently unaware that a facsimile hive was patented in America in the year 1868, but failed to be generally adopted by those clever, energetic, and successful bee-masters of the New World, who prefer the Langstroth and other hives having flat tops.

On the 20th of October, 1868, Dr. A. V. Conklin patented his Diamond hive in the United States. This hive was illustrated and described in the *American Bee Journal* for April, 1869, p. 187. It has also been again illustrated in the same journal, p. 258, on the 20th of April, 1882. I will try to get an electrotype of it from Mr. Newman, the editor and proprietor of the *American Bee Journal*, which I will send you when received, with the specification of his patent, No. 83,257. In describing his hive, Dr. Conklin says the first idea of a *diamond*-shaped frame came into his mind in 1862, more than twenty years ago, and that he afterwards improved on it in construction and cheapness, by adopting the rectangular frame and square case or box, having the frames but partially (say two-thirds) fill the hive, and leaving a space on the two upper sides of the frames for super boxes. Dr. Conklin says he used a marking gauge along the centre of the frame (an invention of Dr. Carpenter), and filled the crease or mark with wax, and that then the bees built the combs straight in the frames every time, commencing along the line of wax. At that time comb-foundation was unknown.

Dr. Price describes and illustrates what he calls his 'Movable-comb, square-frame, double-cased beehive,' in the *American Bee Journal* of November 1868, p. 86. This hive, it appears, was patented and more fully illustrated and described in the same journal for June 1870, —John M. Hooker, *Sevenoaks, Kent.*

Any one, I think, who knows Mr. Raitt of Blairgowrie, will believe his word; but as a pleasure to myself I want to corroborate what he says as to the parentage of the above hive. Some years ago I was gratified by a visit from him, and a night or two's stay with us. I well remember his having set my neighbour, Mr. Alexander Cockburn, your agent here, and me to work to conceive a new kind of hive of an entirely new shape. We failed to make any kind of conjecture in the right direction, so he divulged the idea. No one else was present but Mr. C. and myself; but whether it was at my house or the latter gentleman's I forget which. At that time I think he said he had only given the secret to Mr. Paterson of Struan. I supposed when the thought was lying so long dormant that Mr. Raitt had found out some fatal objection to its working, and I was glad when I saw, in the *B. B. J.* of June 1st, that the hive was ripe for work. Let me say that I am delighted and amused with the idea of the hive. But what of the name? the name is nothing to the point at all, and, as far as I see, I don't like it, say rather the Raitt, or Raitt-Blow hive—the Diagonal hive—the Sheep-hake hive, or something else descriptive.—Jas. Shearer, *Cairnie, Aberdeenshire, June 5th.*

I remember well getting the idea of Mr. Raitt's hive during one of his pleasant visits to us several years ago. At the same time, I understood that he (Mr. Raitt) was not 'making free' with everyone on the subject, and it was out of respect to his wishes that *I did not* bring it under the notice of the general public. By all means give the hive a trial.—A. Cockburn, *Cairnie-by-Keith, N.B.*

I can see several advantages in this hive. The dummy, if made perfectly square, is bound to fit, and wants no contrivances like the dummies for other hives. The driving rain, drive as it may, cannot get to the sides of the V-shaped body. The roof, if made overlapping a good deal, will keep the wet from the joint where roof and body meet, which is more than can be said of a great many of the other hives in use. If ⅜ distance-pins be used at the three corners of the frame (which would touch the hive if not for the said ⅜ distance-pins) the frame could not get out of shape or become jammed. If a hole big enough to allow two bees to pass were cut in front, right at the bottom of the V-shaped body the bees could easily remove any rubbish, and we should not have a large floor-board to scrape in spring; indeed we may put a long narrow V-shaped zinc tray to catch the rubbish if necessary. Also any sized sections may be used in the body hive without so much bother of filling up as in hives of other shapes.—J. Arnold, *School House, East Molesey, Surrey, May 22.*

BEES SENDING OUT SCOUTS WHEN ABOUT TO SWARM.

In an outhouse, hid under trees and amidst other buildings, I had a few days ago put a number of old straw skeps, one of which contained old comb. Seeing the bees visiting this house, I put the old hive with the comb near the window, and on the next day, June 8th, a swarm took possession of it.—Geo. Yeomans, *Sheffield, Botley.*

BEE-CANDY, POLLEN, AND WATER.

I have often been asked, if I use, or why I do not use, 'barley-sugar' and 'flour-cake?' I answer, in the first place, I have no need to use either, because I always see that my bees have sufficient stores supplied them before winter comes on. But, nevertheless, having experimented with it, I am enabled to assert that the practice of giving such food in the usual manner is mischievous in the extreme. Stocks supplied with it have a most restless desire for water, without which they can make but little use of it. Under such circumstances, on every favourable, and I might say, more often, unfavourable opportunity, the bees wander out in search of this necessary article.

Knowing, as most bee-keepers do, what a great loss of life there is when the bees fly out later on, it must be evident to all, that any cause which necessitates them making frequent flights during the chilly months, is most detrimental to the welfare of the colony. Indeed, it will be found that stocks previously strong in numbers, if supplied with candy and not water, will, when spring arrives, be weaker than many colonies that were far behind them in point of numbers the previous autumn.

I am convinced that quite seventy per cent of the bees lost in early spring sacrifice their lives in collecting water; and this is needlessly permitted by their master, who does not care to study their wants, and, perhaps, says to himself, 'If they do want water they can get plenty without me troubling to give it them,' forgetting that the fact of their having to obtain it themselves is the very cause of the 'spring dwindling' he is so anxious about, and which, he is told, is caused by his bees being too old to stand the strain of preparing food for their young—and truly, when such is the case, they are old; but the larger proportion are rendered so by the (unnecessary) amount of work they are compelled to undertake in order to provide for the first batches of brood.

The bees will generally obtain sufficient from the candy supplied to give them a hand-to-mouth existence during severe weather, and no harm is done; but as I stated before, as soon as they can possibly get out they *will* have water, being possessed with the one idea of reducing the food to a liquid state to enable them to store it in the combs.

When plain sugar-candy is given, even if the bees are able to obtain water no brood is reared. Under the same conditions, with *flour* added, brood is at once started; but should the weather then continue too severe for the bees to obtain the necessary supply of water, the whole of the uncapped, and most of the younger capped brood, *die;* the nurses being no longer able to supply them with food of the proper consistency. The brood does not die from being chilled, as some have supposed. The first batch of brood being started at the very heart of the cluster of bees there is no possibility of such an occurrence. Besides, it is well known that nearly all healthy and strong colonies commence to breed in the depth of winter, providing they have stores of good pollen gathered the previous season.

Rather than give a colony candy during the middle of winter, if I had no sealed combs of honey or syrup to spare, I would unite them to another having a sufficiency, and not give it to any until desirable to start brood rearing, when water, and pollen, or its substitute, may be safely supplied.

The fact that pollen is not the least necessary to bees while at rest, or taking only occasional flights, I have proved by many of my own colonies fed on nothing but sugar syrup, which remain very quiet and perfectly healthy until far into the spring, but the moment nitrogenous food is given them or is obtained abroad brood is reared, and the adults also consume a quantity to make up for the wear and tear consequent on the collecting and preparation of food wherewith to feed the queen and her young.

Colonies having a large store of good old pollen in their combs cannot be induced to accept the 'artificial' offered by their master in the spring. Though very busy on fine days they are carrying in water only, and to an inexperienced eye, would appear not to be doing well; but on examining the combs it will generally be found that they are raising large quantities of brood, and are the most prosperous in the apiary.

The plain facts of the case, then, are these: Though ample for adult bees while at rest, honey and sugar syrup are not sufficient in themselves to induce brood-rearing to any extent; if pollen or its substitute is supplied the bees will rapidly enlarge the brood nest, but this will not be continuous unless a supply of water is always obtainable.

It is obvious, therefore, that, in order to prevent 'spring dwindling' as far as possible, every requisite necessary to the production of brood should be given to the bees right in their hive when they will fly but seldom, and then only on the most favourable occasions. Those that have no old stores of pollen should be provided with any desirable substitute, moistened with syrup, and placed in the combs. A few years back Mr. Cheshire recommended the meal made with syrup into a thick paste, and worked into the comb with the blade of a broad knife. I have, however, found that if reduced to the consistency of gruel it may be readily *poured* into the cells, and in this form is greatly preferred, and more rapidly appropriated by the bees; and should they have plenty of capped honey or syrup, the only liquid they require is a constant supply of fresh water; and where it is necessary to give syrup of the usual consistency an independent supply of water is just as necessary.

It has many times been suggested that artificial pollen be placed in the combs, but, nevertheless, the importance of this manner of supplying it is often lost sight of, and few take the trouble to follow it up, or bring the matter to any practical conclusion, for the simple reason, that endeavouring to force the production of brood by supplying a quantity of this valuable article of food, the bee-keeper has, in most cases, lost sight of the fact that the pressure cannot be sustained without (in addition to syrup) a corresponding supply of that most necessary element—water. — SAMUEL SIMMINS, *Rottingdean, Brighton.*

SYRIAN BEES AND FERTILE WORKERS.

(*Continued from page* 50.)

The Hybrids—Syrian blacks—are as large as blacks, but are all well and evenly marked like Syrians, though of a darker shade; *they can be quieted with smoke;* can draw blood when they sting, having frequently done it on myself, though I never saw any other bees do it; their sting is also more painful, probably from its going in deeper. I have been repeatedly stung by Palestine bees, which I could not even feel, but not so with these Syrian hybrids. The rest of peculiarities are similar to Syrians, only I think they are longer lived.

There is one thing about Syrians, viz., if you try to raise queens and remove the queen-cells or hatched-out queens, you will be almost certain to find fertile workers. Regarding fertile workers, I have made a number of experiments and find that when they are present, if you give the bees some brood or eggs they will commence to raise queens, but they are destroyed when about two days off hatching out, and when the fertile worker begins to lay, they try to raise queens from its eggs; but if you cage a fertile queen 30 to 48 hours, *she will be well received*, neither will the queen destroy the fertile worker, but if not already worn out with age she will lay her eggs side by side with the queen; and the drone brood will be reared and hatch out in company with the queen's offspring. I have noticed the produce of fertile workers in all stages upwards of six weeks after introduction of queen.

I was led to experiment in this direction, after raising

a Syrian queen, letting her remain in the same hive till fertilised—ten days after all the worker brood were hatched—when, after removing her, a fertile worker appeared, so that it must have been in the hive at least ten days in company with a queen; also in another case, when the young Syrian began to lay, fully half of the worker cells were filled with drone brood; which I thought could only have been laid by fertile workers unless the queen was deceased in some way.

If anyone doubt it, let them make the following experiment; raise Syrian or other Eastern queens, when hatched remove, and when *all the bees are hatched*, cage a fertile *black* queen, 30 to 40 hours afterwards set her at liberty; keep looking them over from time to time, when if a fertile worker is present she will be laying drones mostly in worker cells, which will hatch out *yellow ones*, thus proving all the above facts in one experiment, for no black queen will produce black bees and yellow drones. I shall never consider a stock is in any danger by having a fertile worker in it. My friend, Mr. Adams, of Melksham, confirms me in introducing a fertile queen in a queenless stock having a fertile worker.

I have seen many reports from time to time in the *Bee Journal* of drones being produced apparently without any cause, but my experiments explain the reason:—I am satisfied fertile workers are never killed, neither do they kill, and if bred late may live through the winter and produce drones in the spring.

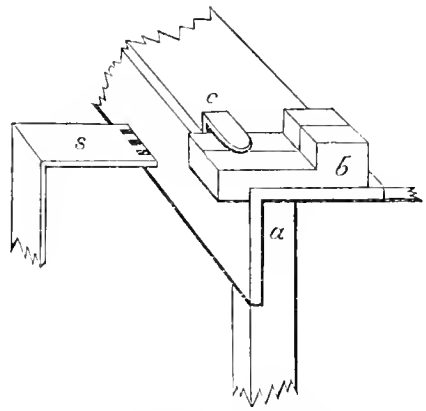
I communicated particulars of my experiments to Mr. Frank Benton, asking him to give me his opinion. From his letter dated Athens, Dec. 30th, 1882, I transcribe what he says as follows: 'In reply to your query regarding fertile workers among Cyprian bees, I may say that I have "suspected" that they continued to lay, for a number of days at least, after the hive possessed a laying queen, but I never *knew* it nor tried to prove whether it was so or not. Your experiment of introducing a black queen in place of the other was a very good one, but of course I could not have such an opportunity having no black bees in the country. Then, too, my time for experimenting has been very limited, I was led to notice this peculiarity of Cyprian and Syrian bees by finding oftentimes, in colonies that had been queenless, and that I knew had possessed a fertile worker, but which had afterwards hatched a queen and got her laying a great many larvæ in worker cells developing as drones—this, even three weeks after the queen had commenced laying—long enough to be sure; the eggs must have been laid a week to ten days after the young queen commenced laying. I observed in several instances such a number of these drones as to lead me to suspect that they came from fertile workers since the young queens were not likely to deposit so many, if any, drone-eggs during the first few months of their lives, unless indeed they were worthless queens; but these young queens—and that is just what made me notice the matter,—were as fine ones as any I ever had, and were at the time crowding their hives with worker-brood and continued to do the same later on after all drones in worker-cells, in fact all drone brood, had disappeared from the hives.'—JOHN HEWITT, *Sheffield.*

SWARM VAGARIES.

On the 13th May a Ligurian hive sent out a swarm, and on the 22nd of that month a cast. On the same day and about the same time another Ligurian hive sent out a swarm, and the cast and the swarm united together; my gardener hived this compound swarm, but the bees were restless, and came out again, so as to compel him to go over the ground again and relieve them. There stood in the garden on a stand a hive, the bees of which had died during the winter; indeed, it was my intention to have removed this at a convenient opportunity; and the following morning, the 23rd May, the compound swarm for the second time quitted the skep and took possession of the hive on the stand above mentioned. There the swarm remained until the next day, the 24th May, when one of the queens, both of which must have kept together, headed a swarm comprising, as far as I can judge, about half the original number of bees, and were hived as though they had regularly issued. Both these swarms are doing well, and each of them evidently has its queen. —C. H. HODGSON, *Erith.*

SAWING SECTIONS FOR FOUNDATION.

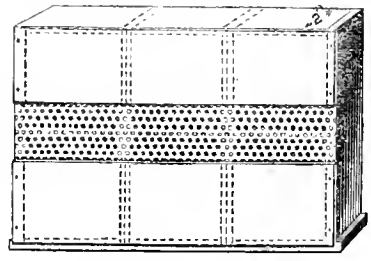
Lately a correspondent (vol. x. p. 202) suggested that manufacturers, before sending out sections, should make a saw-cut to insert the foundation in. Now I think this would be found impracticable, for the sections would get broken in transit after being so sawn. I think if you would refer the correspondent to p. 170, vol. x., where the little tool which I made for sawing them in is described, or, better still, give the cut again, it will be



found so simple and easy to make the cut and fix the foundation therein that one would not run the risk of breakage, which would be sure to follow having them sawn by maker.—W. HAMILTON, jun., *Castleblayney.*

BLAYNEY SECTION FRAME.

I enclose a sketch of a combined section-holder and queen-excluder which I have made, and which I think would be found very useful by most bee-keepers. The frame itself may be made either with or without a top-bar, according to size of the hive and sections used. On one side of it across the centre is fastened a strip of



excluder zinc, say 3 inches wide, giving entrance to lower and upper row of sections, and above and below the zinc is then sheeted with a thin board. The other side is left open, and the dummy is intended to lie close to it when put in the hive. I think it will be found in use that a great deal of trouble will be saved by this and some expense.

If such an article has not been before invented, I would like it called the 'Blayney Section Frame.'—W. HAMILTON, jun., *Castleblayney.*

SIMMINS'S DIRECT INTRODUCTION.

So many seem to have succeeded with this and write to tell you so, that perhaps one who has tried and *failed* may be allowed to chronicle it too.

I had a very weak hive, and to strengthen it I intended to add to it a comb of brood from a strong hive; but having read of the new plan I thought how much better it would be to add bees as well and without the trouble of spraying, &c.; so I took a bar covered with bees from the strong hive and put it carefully in the middle of the weak one, smoking them just a little to prevent being stung during the operation. I covered them up and waited a few minutes and all seemed well, and I went home *greatly pleased* with the new method.

Next day I looked at the hive and found the board and ground covered with dead bees; on opening the hive I found the queen and a few young bees alive, but every one of the old bees dead. Result of direct introduction, loss of hive.

Perhaps some may be able to account for this. Perhaps I shall try again: but evidently it does not always succeed.—H. A. S.

SINGLE *v.* DOUBLE-SIDE HIVES.

(*Continued from page* 51.)

In stating my reasons for preferring hive sides of a single thickness, I shall touch on the theoretical side of the question first. Double sides to hives are quite of modern introduction (I do not find them mentioned by Bevan or any previous writer), and are usually considered to be an improvement, on the ground that the more non-conducting of heat the hive-side is made (so long as there is ventilation) the better for the bees. I shall try to show that this reasoning is not altogether correct.

Now the chief use of hive sides is to prevent the escape of too much animal heat from the bees. A direct analogy is found in the use of clothing by human beings, and we find if we wear too little, that too much heat escapes and we experience cold, while, on the contrary, if we lay in bed, or in the daytime we cover our bodies with too great a thickness of non-heat-conducting material (however porous it may be), sufficient heat does not escape, and we feel warm and uncomfortable. The reason is that nature presumes a certain escape of animal heat from the body, and provides for it by producing a continual supply of heat by the oxidization of the blood. And we find in practice that there is but one degree of warmth in clothing desirable (with one external temperature) and that a greater quantity is as injurious as a less.

The same reasoning applies to bees; nature has provided them with respiratory, digestive, and circulatory systems, by which carbonaceous food (such as honey) is converted into blood and oxidizes, with the result of the production of a considerable quantity of animal heat, to make up for the loss of heat through external circumstances.

What the advocates of the dead-air—chaff and cork-dust system—say is, the less the escape of heat, the less food consumed, this is all very well to a certain limit, but it reminds me of the tale of a man who was teaching his horse to do without food, and had got him down to a straw a-day, but unfortunately for the success of the experiment, the day before he was to take his first airy meal on nothing, the horse died.

That a hive could be made in which the escape of heat would be almost nominal is shown by the existence of a cooking apparatus (called the Norwegian) in which a vessel containing food is brought to the boiling point, and then placed in a box thickly lined with non-conducting material, and the heat already produced, not allowed to escape, completes the cooking in four or five hours time.

If a hive were made as perfect as this, the poor bees, who are by nature provided with a continual production of heat would become hotter and hotter until they would finally be cooked in their own juice.

In short, my view of the matter is that hive-sides should allow of the escape of just as much heat as is naturally produced by the bees, and the problem is to find out what this requisite amount of protection is. Of course a strong stock of bees would do in a thinner hive than a weak stock, and more heat would escape in winter than in summer, but I think a strong stock in winter should be taken as the standard to judge by, because, in the first place, weak stocks should never be kept, and in the second, although the hive would be warmer in summer the bees are provided with a natural means of ventilation by fanning. I think few will dispute that a hive made of a single thickness of wood is cheaper, simpler, and less bulky than one with double sides, and I maintain that the advocates of the latter have hitherto failed to prove their superiority for wintering or other purpose: how do they explain the fact that in our climate stocks winter better in a severe season than in a mild one?—A. WATKINS, *Hereford.*

TAKING BEES TO THE MOORS.—A NIGHT JOURNEY.

I will just tell you, sir, my beginning two years ago. I began with one hive: I took a super from it weighing 28½ lbs. (good 24 lbs. of honey), which I sold to Mr. Gregory, merchant, of Newcastle, for *l.* 12*s.* 6*d.* I had also three swarms from it. Last year my stock had increased to seven. Another super I took off the old hive, 20 lbs., but none from the others.

I wish to tell you the story of my taking my bees to the moors. Well, Tom, my brother-in-law, and I (the only bee-keepers in the parish, which contains 313 persons, and comprises 4544 acres, chiefly owned by the Marquis of Londonderry) took sixteen hives on August the 12th to the moors. But here our troubles and our losses began. Some of Tom's hives were straw, all mine wood. We had not gone three miles before some bees were buzzing about our ears; so at a railway crossing the gatekeeper lent us his lamp. One of Tom's straw skeps had broken down—the bees creeping all over. A pretty fine job we had to get it put right again! Next we came to the town of Yarm, in Yorkshire. Tom knew an innkeeper there. So we called, got a light, when lo! two more hives had followed suit. The landlady lent us a shawl, and we put one hive on it and tied it up, the other we put in a sack. I felt something creeping up my thigh, and in an instant became painfully aware of the intruder. So I got some string, and we tied our trousers bottoms around our boot tops, stopping any further encroachments in that quarter. Off again, and a little way out of Yarm I struck a match to light my pipe, buzz came some bees and extinguished it. Try again, succeeded, and discovered on the back of Tom's coat a large cluster of bees. 'Tom, here is a lot of bees on your coat.' Tom stuck his head under his coat-collar, saying, 'Knock 'em off! knock 'em off!' But I said, 'No, not for Joseph; give me the reins, get down, pull your coat off, and shake it well, while I drive the horse on.' For I was afraid the poor animal would be sharing our fate. It was very dark, there being some big woods on either side of the road. We started again, and some miles further we came to a road-side inn, and, I am thankful to say, they were up, and the innkeeper brought a lamp, and we put some paper in the crevices where the bees were creeping out, and tightened our cords. We got a glass, and treated the landlord to another for his kindness; the mistress gave us each a piece of soda to rub the places where we had got stung. Past midnight we started again, and after some miles we came to the foot of the hills, which were very steep, the horse could not go many yards without a rest. I got a large stone to put behind the wheel to prevent the rolley going back: so I got my

fingers between it and the wheel which crushed the skin off them; then a little further I fell into a gutter, broke my pipe, and nearly my arm. Well, sir, we reached the end of our journey at four o'clock in the morning; the place (three houses) is called Wild Goose Nest. Yes, I thought we had a wild-goose chase too. There were six other arrivals, every one of which had had some mishap, as they all had straw hives; one man had six, every one of which had broken down, and the bee-man's wife lent him a muslin window-blind to cover his head, as he was most of the day working on with them.

So you see, sir, the superiority of wood over straw for hives, our wood hives being all right. Well, when the sun arose there was a fine ado among the bees on account of the honey which had run out into the conveyances. We took the precaution to wash our trap, so that when we started for home the bees would not annoy us; however we could not start until evening, for the other traps were in the road and covered with bees. I never shall forget the sight. The excitement among the bees was fearful, two of Tom's best hives were a complete wreck; the other bees came in thousands for their honey, for all we took them to a distance from the bee-garth, where there would be two or three hundred hives, which was the number I think the bee-man said he had; just think ten thousand bees in each. A young woman who had come with one of the party would go to see the hives in the garth, so I thought I would just wait at a distance to see how this heroine would succeed in gratifying her curiosity. Well, before long I saw her capering about like Meg Merryleg, shaking her petticoats; she soon made a stampede into an outhouse, and I saw her no more. Tom and I then walked to a town called Osmotherley on the borders of the moors. When we returned the bees had settled down nearly, so that we ventured to bring the horse out, and we got our faces turned homewards. The bees were there six weeks, and when we went for them three of Tom's were quite empty. Two or three days after we got home I drove one into a hive full of comb: I got the bees out of their black home and found the combs filled with glue-like stuff, which, after days before the fire, would not run, nay, it would not squeeze out: so my wife took Mr. Abbott's plan and put some cold water to it and made some mead, the only good thing from these moorites, for I let the others alone. I quite endorse the remarks made by bee-keepers in the *Bee Journal* about black honey. However, no more moors for me, travelling about the lanes at midnight, never seeing a soul except a policeman now and again; and look at the expense, we paid about 50s. one way or other, and got weary bones, sore skins, empty hives, and a lot of useless gum-arabic-looking stuff fit for nothing. I never shall go there any more. So wishing you success with the *British Bee Journal*, I for the present say good-bye.—Joseph Franks, *Longnewton, Darlington.*

THE BEE AND ITS HOME.

A poor cottage bee-keeper, sir, I have the opportunity of reading your *Journal*, and I see there that you set us down as a poor, ignorant class in the way of bee-keeping. I hope you do not mean one and all, for I myself have, at the present, sixteen stocks in good condition, fourteen of which are in bar-frames, which I prefer before straw. I have a neighbour on the same principle as myself—a cottager; and I do not think we ought to be put back so far in the background when we are trying our hardest to get to the front. I have a small apiary, which I do not mind any gentleman or lady seeing, for I think it will bear inspection. I do not mind a few old straw hives in the way; if I should come across them for sale, I buy them and bring them home and transfer them into bar-framed hives, and the old straw does very well to light my fire; and in the autumn I get all the condemned bees from their miserable little homes and the sulphur pit, and bring them to my home and put them in a clean little cottage called the 'bar-framed hive,' and I look well after them, and hope they will fetch me the first prize this summer.—James Elson, *Farncombe, near Godalming, Surrey.*

SKEPS FOR COTTAGERS.

I have been greatly interested in reading the suggestions of the Rev. W. E. Burkitt, in the February number of this *Journal*, as to 'the best way of instructing cottagers in the art of bee-keeping:' and the correspondence arising thereon in the two following numbers; and though, perhaps, enough has already been written, I cannot refrain from making a few remarks on the same subject. I am persuaded that with the majority of cottagers in this neighbourhood, and especially those whose occupations keep them from their homes during the greater part of the day, the use of bar-frame hives would end in disappointment, and ultimately in the abandonment of bee-keeping.

There is such a large field for improvements in the size and shape of the hives, and so much still remains to be learnt by most cottagers in the three points mentioned by Mr. Marten in the April number, viz. driving, feeding, and getting surplus honey in its most attractive and saleable shape that it seems to me, the best instruction to cottagers, with a view to their making bee-keeping profitable, would be in the above points, rather than in the abolition of straw skeps in favour of bar-frame hives. With a very few exceptions the cottagers in this neighbourhood keep their bees under such unfavourable conditions that one is led to wonder how they contrive to make them pay at all. The hives are not, in many cases, larger than tolerable-sized supers. Feeding, supering, and driving, are almost unknown. The usual plan being to smother the strongest hives and keep those which have so little honey that they are not worth killing, as stock for the following season. Of course, it must be understood that I only include in this category *bonâ fide* cottagers, and not to those bee-keepers who have both time and means to adopt the wiser course.

In support of my statements I will give an instance coming under my own observation:—An intelligent working man to whom I had recommended bee-keeping as a means of profit, began with a weak swarm in 1880. By dint of feeding he got them in a most prosperous condition for the next spring; and now, in 1883, he has three strong stocks, having taken 25 lbs. of honey last year by driving, all three hives giving fair promise of May swarms. I venture to say that if he had adopted bar-frame hives instead of large flat-topped skep, he would have become involved in inextricable confusion, and given up bee-keeping in disgust, as being too expensive, and requiring more care and attention than he could devote to his bees. I may add that I hope this year to bring him forward a step further, by adopting sectional supers and artificial swarming.

I, for one, should hail the addition of a chapter on straw skeps in the new edition of *Modern Bee Keeping* as a great boon to my bee-keeping neighbours.—G. M. Doe, *Torrington, North Devon, May 8.*

WHO IS A COTTAGER?

I have read the discussion on the above subject by the B.B.K.A. as reported in last *Journal*. The matter has been well threshed out, and as a result I suggest that 'Who is a Cottager?' may be decided, as many other things are, namely, by points. We see, as Mr. Garratt says, that one hard-and-fast line is impracticable. Well, I say, to suit the United Kingdom let the—1st point be 'An agricultural labourer.'

2nd. A house not above 6*l.* of rent, or rated below 6*l.* as Mr. Bartrum says.

3rd. Under 30*s.* weekly wages, as Mr. Sowell says.

4th. Being owner of less than 200*l.* in money or property.

5th. Living in a house of not more than three apartments,—a kitchen and two rooms, or bed-rooms.

Then to have the thing in working order, let the person who applies as a cottager be eligible under three of these points, and make him state the three under which he makes his claim.

I hope the above may help to solve the knot as to 'Who is a Cottager?'—Jas. Shearer, *Cairnie, Aberdeenshire.*

THE BONA FIDE WORKING-MAN'S WIFE.

I have been greatly interested in reading the article on 'the *Bonâ Fide* Cottager.' But the question naturally presents itself, how is the working-man's wife (who had the sole management of her bees) to be classed? Am I to be judged according to the amount of wages my husband receives or rent he pays? I fail to see what possible connexion that can have with my capabilities as a bee-keeper. Would it not be a fairer thing if we could be arranged according to the size of our apiaries, either men or women? For instance, if I, commencing the season with half-a-dozen stocks, can bring to our local show a larger quantity and better quality of super or extracted honey than another person (man or woman) who owns an equal or larger number of hives, am not I the better bee-keeper of the two? It is most discouraging on taking a nice little collection of glass supers and sections some thirty miles to an exhibition, as I did last summer, to see all chance of gaining a prize taken away by a man who came in with large supers as much as he could carry,—doubtless he was a '*bonâ fide* cottager,' although owning to the possession of from forty to fifty stocks. It is quite useless for people like myself attempting to show what progress we are making unless we are more fairly dealt with. I am quite willing to compete with any one on equal terms, but it cannot be supposed that we can do as much as those who have accommodation for large number of hives. I trust you will give the subject your kind consideration.—A Member of a County Association.

GRANULATED HONEY.

I went last Tuesday to inspect the apiary of my friend, Mr. Brown, Swineshead, and judge my surprise to see a quantity of honey (about 100 lbs.) extracted from unsealed cells on the previous Friday granulated so quickly that the jars could be inverted. It was of good flavour, and gathered from apple and turnip blossom. At a previous visit, a fortnight before, I found the bees breeding well, having an abundance of pollen, but very little honey, although his orchards (about sixty acres) had had much blossom, especially apple, gooseberry, currant, wallflower, crocus, and turnip, which ought to have yielded more stones than there were pounds of honey; but it demonstrates the fact that the flowers cannot secrete honey without warm nights, which have been for a long time cold. Will some of our honey experts explain through the *Journal* the cause of honey granulating so quickly, in addition to cold nights and a dry atmosphere? The Americans prefer granulated honey, I think, and consider it a test of purity.—R. Thorpe, *Evedon, June 9th.*

STANDARD HONEY.

Our Association has given us a Standard frame, and will, I hope, lay down the law on many points yet. A very important one, I would suggest, is honey, its correct weight; they would I am sure deserve, if they did not get, the thanks of British bee-keepers, if they would settle in committee the proper specific gravity of ripe honey. One cannot wait till it is all sealed, one cannot afford it; the labour of extraction is so much greater, and the bees ought not to be troubled to do it; neither can we afford to spoil our markets by flooding them with a lot of crude stuff that won't keep; we must keep our extracted honey in some moderately hot place till the weight and the measure correspond in the proper proportion. Will some of our associates kindly take the matter up that it may be settled in time for the coming season? Will some one kindly give the temperature of a full hive in full work, say July?—Geo. W. S.

Review.

The Bee-keepers' Guide; or, The Manual of the Apiary. By A. J. Cook, Professor of Entomology in the Michigan State Agricultural College. 8th edition. Lansing, Michigan, 1883.—This work has had a wonderful success—a success which is commensurate with its merits. While we feel assured that many years will come and pass away before the wonders and the mysteries of the bee will be exhausted, we believe that the present work is as exhaustive of what is at present known of bee-culture both in Europe and America as it can well-nigh be. It treats of the subject as a whole. The theory and practice of bee-keeping, bibliography, the anatomy and physiology of the bee, honey plants, the enemies of the bees, are all treated with a master hand. The progress of the work has been remarkable. A course of lectures given at the Professor's college was published in the year 1876, under the title of the *Manual of the Apiary.* The edition, consisting of 3000 copies, was soon exhausted, and every successive year has called for a fresh issue, and on each occasion has the work been revised, enlarged, and more fully illustrated. The edition before us is the eighth (the tenth thousand); and such has been the progress of apiculture—so changed have become the views and methods of our best bee-keepers since the previous edition was published—that the author has considered it necessary on the present occasion thoroughly to revise and to recast it. Not only is the work re-written, but much new matter and several illustrations have been added. The work now consists of 360 pages with 192 illustrations. It is the clearest and the fullest exponent of improved apiculture yet published, and it should be in the possession of all advanced bee-keepers. The book is well printed, and has a well-arranged and copious index.

Echoes from the Hives.

Devonshire.—The beginning of May was far from promising to apiarians, being cold and wet, but on the 15th the weather changed, and summer came with a rush, honey coming in large quantities, stocks doing well, and swarms issuing in various parts of the county; strong colonies quickly took to supers, and everything appears to predict a good season. The record of weather was not very much or interesting. 204 cents of rain fell during the month; the most was 53 cents on the 11th. It was half an inch less in May 1882. I may mention that in the echoes for this county I am indebted to Mrs. Dickinson, Tiverton, for the weather returns.—W. N. Griffin, *Hon. Sec. D. & E. B. K. A.*

North Leicestershire.—Uninterrupted fine weather from May 13th to June 9th has given the bees a good chance of recovery from the disastrous effects of the cold weather in March, and many stocks are getting very strong. Natural swarms are slow to appear; the earliest in this neighbourhood came out on the 25th ult. from a stock belonging to your talented correspondent,

Mr. W. Ingram, of Belvoir. Artificial swarms were made and sold a few days later. Bee pasturage has consisted mainly of sycamore, hawthorn, laburnum, horse chestnut, maple, gilly-flower, and buttercup. During several days, all kinds of blossoms were neglected for the sake of the sycamore, which has been wonderfully productive both of pollen and honey this year.—E. B.

Horsham, Comptons Lea.—The month of April was a very trying one for bees, and was remarkable for the prevalence of cold winds. With the exception of a few days the wind kept in the E. and N.E. There was a very small amount of rain. It fell on ten days, and the total amount in the month was 1·63 inches. The largest quantity fell on the 28th, being ·48 of an inch. Snow fell on the 24th, there being ·27 inches. During the same month in 1882 rain fell on seventeen days, and the largest quantity in one day ·76, on the 26th. The total quantity being 3·05 inches in the month. The highest temperature in the shade was 68°·9 on the 5th, and the lowest on the night of the 9th, viz. 29°·3. The sun shone on twelve days, there being a solar halo on the 26th. The prevailing wind was N.E. Towards the end of the month bees were collecting honey, and breeding very rapidly, Cyprians being out early and late.

The month of May was most favourable for bees, notwithstanding the northerly winds. During this month rain fell on eleven days, the total amount being 2·07 inches. The largest quantity, ·58 of an inch, fell on the 12th. During the same month in 1882 rain fell on fourteen days, and the largest quantity in one day, ·23, on the 5th: the total amount for the month being 1·44 inches. The highest temperature in the shade was 76°·6 on the 24th, and the lowest during the night of the 4th, viz. 31°·0. The sun shone on seventeen days, and there was thunder and hail on the 11th. The prevailing winds were N., N.E., occasionally going round to N.N.W. The bees were collecting honey the whole month, and on the 24th a Stewarton hive was supered and sections put on two other hives, and section frames in two others. The hives were very full of bees, and towards the end of the month commenced extracting from brood frames to give the queen room for laying. Altogether there is a fine promise of a good honey harvest.—Thos. Wm. Cowan.

Essex, Bocking.—The latter part of May in this neighbourhood has been grand for bees. My stocks have in about a week filled all available space in ten and twelve bar Woodbury hives with honey; and two of the stocks have also worked out a crate of 1 and 2-lb. sections respectively nearly ready for capping. All cells built during the night were filled with honey during the next day.—Geo. Gray, *June* 2.

Hunts, Somersham, May 23.—The weather during the present month has on the whole been all we could wish for. For the first eleven days N. and N. E. winds prevailed. Since then the wind has been almost wholly in the S. and S. W., only occasionally going into the N. and E. Rain fell moderately on the 8th, 9th, 10th, 11th, and 14th. The honey supply is very limited. Fruit blossom is about over in this neighbourhood, and there is very little else from which the bees can gather honey. Whitethorn is coming into bloom, and the only field of white clover in the district will shortly bloom. I am afraid we shall not have much honey here this year. The first swarm issued on May 22nd. Drones are being killed by hundreds in some cottagers' apiaries, and no wonder. I have fed most of my stocks for some time, but it is a difficult matter to get those who rarely feed to consider that bees require more than sunny weather. More interest in the humane treatment of the bee is, however, being evinced.—C. N. W.

Gloucestershire, Fairford, May 23*rd.*—The weather has been very fine and warm for more than a week past, and the meadows quite gay with flowers. I have some very bad luck with my bees, but I think it best to persevere till I have got more reconciled to it.

The Rev. W. E. Burkitt, of Buttermere gave one of his well-known practical lectures at Lechlade on the 16th inst., and on the 17th at Fairford, both of which I am sorry were very badly attended, being only thirteen at Lechlade and twenty-seven at Fairford, although very great pains had been taken to get people to attend. Mr. Burkitt also gave a lecture at Cirencester on the 18th, which I understand was rather better attended than the other two. Mr. B. also visited a few bee-keepers at each place.—Joseph Cook.

South Cambridgeshire, Sawston, May 23*rd.*—The weather at the present time is all that could be desired. Stocks that have been steadily fed, and in which the brood has been judiciously spread, are very strong as a ride. I have not heard of any natural swarms, and drones are not yet numerous; but I have taken artificial swarms from my frame-hives. I have been very unsuccessful in rearing queens. In the first place I could not get any drones until quite lately, the bees in my strongest hive positively refusing to undertake the duties of drone-rearing, although the queen was nothing loth to lay the eggs. Then I could not persuade my best Ligurian stock to form more than two or three queen-cells, and have been obliged to start a fresh batch. Just now there is but little honey coming in. The apple-blossoms are over, and the sycamores almost ditto.—S. G.

Hungerford District, Wilts, May 25.—Surviving bees improving rapidly. Many losses during past month. Nearly all early brood, even in well-protected hives, perished from cold, though steady feeding was attended to. Currants and gooseberries not in bloom till last week in April. Between May 1 and 10 the ground was three times white with snow, on 10th three inches deep.—W. E. Burkitt.

East Norfolk, Rollesby, June 1*st.*—Whit Monday was almost the first summer day since February, which month was mild, bees were active, and Limnanthes and a few other plants forward. The subsequent easterly winds and wintry weather stopped all this; and until Whit Monday the bees were almost entirely confined to the hives. My bees wintered well, and even yet some of the winter stores are unconsumed. Apple and pear trees blossomed abundantly, but the bees hardly touched them; they have worked chiefly on the little blue forget-me-nots, holly, and sycamore trees. I examined them yesterday, and find plenty of brood, but little honey, none sealed, and no appearance of queen-raising in any of the hives. One stock, though regularly fed, has dwindled so much that I have had to unite it to another, which was dwindling from the queen being purely a drone breeder; this latter was the case alluded to in Query No. 576, in your issue of 1st May last. Some of my frames are as full as they can hold of brood, and the hives promise well for the white clover in about a fortnight's time, but swarms will be very late.—H. A. S.

Creeting, Suffolk, June 2.—These last three weeks have been capital weather for the bees; rain only on 25th and 26th. The first swarm I know of came out yesterday. I append the weights of one of my stocks, after deducting skep, stand, &c.:—May 19th, 14 lbs.; 23rd, 17 lbs.; 25th, 22 lbs.; 29th, 26 lbs.; 31st, 29 lbs.; June 2nd, 34 lbs.: increase in 14 days, 20 lbs.—T. E. L.

Maidstone, June 4.—If swarming is a criterion of how bees are doing in this neighbourhood, they must be doing much better than they have done for two years. My first swarm was May 13, followed by another May 15; a second from the first that swarmed May 22: but between these dates I have hived several for neighbours. I have supers on five hives (both sections and a copy of Lee's super) being worked in a very satisfactory manner; and I am in hopes that the bees will pay me

for the two hundredweight of sugar purchased last autumn to keep them going.—J. Torry.

Sheffield, June 8th.—The last snow shower we had was on May 11th. On the 12th the weather suddenly changed, and in a few days trees opened out into leaf and bloom as if by magic. Apples, pears, cherries, and currants all in bloom together; and such a quantity!—I never remember seeing so much. Bees made wonderful progress, and yielded a large amount of honey of the finest quality I ever have had in the spring. On June 3, 4, 5, and 6, we had a cold, dry, north-east gale, which has done a lot of harm, and thrown bees back. Very little rain has fallen the past four weeks, and we now begin to need it.—John Hewitt.

Cairnie-by-Keith, N.B.—The weather is now favourable in this quarter, and bees are hard at work. I have just examined my hives and most of them are filled with brood from side to side and require enlargement.—A. Cockburn.

Leslie, Fife.—The seasonable change experienced here about the 13th of this month came as a blessing to bee-keepers. Since then the weather on the whole has been most propitious, and hives have increased greatly in strength. Swarming commenced here on the 4th of June, being five days later than last year; and now almost all hives are ripe and show symptoms of throwing large swarms. This refers, however, only to those who have continuously and liberally supplied their stocks with feeding. Neglected stocks are now in a miserable condition, although I am glad to report the number of believers in the old-fashioned system of 'let alone' is rapidly diminishing. The present prospect is very hopeful, and we are looking forward to a good honey year. Clover is not yet in bloom, but as soon as it is supers will be placed in hives, as there is no surplus honey here till the clover appears. Season as yet remarkably dry. Rainfall for May, 1·7 inches; last year, 2·7 inches.—J. L.

County Cork, Passage West.—Latter part of April favourable for bees, and first week in May sultry weather, but on the 9th a fall of snow and down to 34 degrees; then a few days of cold and rain, and since that fine summer days, and a regular glut of honey. Where bees were stimulated by the fine weather in April, a good many stocks died during the cold of the second week of May. Bees that have been looked after doing well, but very few swarms till end of May. My first swarm, from a Pagden skep, came off May 17th, and was a very large one, and was the earliest that I know of about here. The inconvenience and almost utter impossibility of working the Giotto frames is very apparent in the spring when hives require to be examined without disturbance: and as to making artificial swarms, &c., &c., —— well, it's 'a caution!' We shall have a good show of hives and appliances at our Industrial Exhibition next month.—J. Crosbie Smith.

Co. Cork, Ballinacurra.—I am glad to say honey is coming in now very fast; hives filling up with young brood, and all in bar-frame hives very strong, having wintered admirably in them: honey is being stored in supers already. Berberis Darwinii afforded honey very early, but not pollen. Furze was magnificent, yielding an immense quantity of pollen, and, I imagine, honey. Until to-day I did not notice hive-bees on Trifolium incarnatum, it requires the hot sun I suppose to form honey in the flower. A brown pollen is collected off it also. Sycamore was largely worked on by bees, and must have given a quantity of honey, as I found combs worked out and filled after a couple of days. Buddea globosa is covered with bees now. I hope to plant that and Berberis Darwinii largely. Buckwheat up for late feeding. Apples, strawberries, currants, raspberries, promise abundantly.—John J. Smyth.

Dublin.—Glorious weather for bees here for the last month, upper portion of frames and crates of sections filled with apple-blossom honey, and the bees are now bringing in honey in quantities from hawthorn (which is a perfect mass of white blossoms, and seems to be full of honey), and from thyme-blossoms, &c. I do not use excluder zinc to the super crate; I find that the queen is unable to lay eggs in them, as when they are partly worked out they are filled with honey, so that there are no empty cells to lay in. Swarms seem very scarce here; I have not heard of any yet among my friends, and the cottagers are looking for a big price for early swarms, in fact double price, now that they see they are of value if properly managed.—J. P. Allen.

Queries and Replies.

Query No. 613.—*Destruction of Bee-moths in Straw hives.*—Which is the best way to remove moths' eggs and maggots from straw hives used last year, and which are again required for use this season? When swarms were first put into them they were new and clean, but on taking out the honey in autumn it was found to be infested with insects and they still exist in the straw.—H. B., *Galway.*

Reply to Query No. 613.—Let the straw hives be smoked with the fumes of burning sulphur, which will kill the eggs or the worms of the moth.

Query No. 614.—*Early Slaughter of Drones.*—In one of my hives the bees are killing the drones wholesale. What is the reason? It is not a strong hive, and has been troubled with bee-moth, but I think we have got rid of them.—Nigel Greeley, *Netherdale Rectory, Ashby-de-la-Zouch, June 4.*

Reply to Query No. 614.—Mrs. Tupper has originated an expression which bee-keepers have adopted as an axiom, 'Bees do nothing invariably.' We are inclined to dispute this dogma, and to aver that in all the acts of bees there is reason could we short-sighted humans discover it. We are more inclined to agree with the idea of an older bee-keeper than Mrs. Tupper, namely, Virgil, when he speaks of the *divina mens* which directs and influences the actions of bees, and that, so possessed, they never deviate from the right track. When we see bees in early summer worrying and killing off the drones, and destroying the immature drone-brood, we may express our astonishment and denounce such goings-on as abnormal, irrational, Malthusian, and so forth. But could we look beneath the surface we would find there was some reason for their action, and it will be discovered in the knowledge arrived at by the bees of the stern necessity for the reduction of the number of consumers of their stores. Generally the reason of such conduct on the part of the bees is that feeding has been discontinued too abruptly, or there has been a sudden check in the income of honey. In our correspondent's case the bees have seen fit to take the matter in hand, and they are doing so in their own decisive manner.

Query No. 615.—1. *Fanning.*—I have recently established two swarms in wooden Combination hives, and placed a sheet of coarse cotton wool together with the cotton quilt over the frames. The bees are working well, but fanning appears to be much more vigorously carried on at the entrance than in my straw skeps. Is this a sign that the heat of the hive is too great, and is it advisable to place any other covering but the quilt at this season of the year over the frames? 2. *Supers not entered.*—I cannot persuade my bees (in straw skeps with flat wooden crown-boards) to work either in glass supers or box of wooden crates. I fasten the former on with lime or putty, and wrap them well up with cloth or cotton wool. What is the cause of my failure? Is it necessary that the glass supers should have a hole at the top

for ventilation? I should add that the hives are full of bees, and two have swarmed rather than enter the supers. 3. *One-pound Sections.*—Can one-pound sections be used in wooden Combination hives (Stothard's)? and if so, how are they fixed?—Amateur, *Yorks.*

Reply to Query No. 615.—1. When breeding is going on, no upward outlet for heat and moisture is required, as in winter. If you fear the temperature is too high, shade the hive and enlarge the entrance. Fanning is a good sign of prosperity. 2. Perhaps the hole is too small. Try drumming the hives until the supers are full of bees. We presume you have furnished them with comb or foundation? No hole is required. 3. One-pound sections may be used either in a crate over the frames, or in a frame or frames at rear or sides of brood-nest. The maker will no doubt supply you with the fittings suited to his particular make of hive.

Query No. 616.—*Andrenæ.*—I enclose a few bees, and shall be glad if you can tell me the tribe to which they belong. There are two nests of them in our cemetery, under the slabs of two monuments. They have stings, but do not seem to have strength to force them into my hands. I have not seen one go in without the legs covered with pollen, and all the same colour—it looks like the pollen from apples. I have had some very black bees, but you will see they are all exactly alike in colour.—Horwith, *Louth.*

Reply to Query No. 616.—The bees forwarded belong to the family Andrenidæ — species *Andrena Trimmerana.* It has a black abdomen, and is distinguished from the varieties which are very similar by the light-grey colour of its puboscent down.

Query No. 617.—*Fertility of Queen.*—On May 24th I made an artificial swarm, but I suppose I took too many bees, as it (the swarm) swarmed naturally on June 1st. There were plenty of drones flying in the old stock, which is about eight yards distant, but I fear not many in the swarm. Please say what will be the signs that the young queen is not fertile?—J. George, *Hollington, St. Leonards.*

Reply to Query No. 617.—If there was not a queen-cell in the stock-hive when the artificial swarm was made, the bees would have to construct one and a queen would be hatched out, starting from an egg in fourteen days. The queen would in the usual way fly to meet the drones on the fifth or following days, and if impregnated would commence to lay two days afterwards. As the hive was swarmed on the 24th May, about the 14th June will be the time to expect the queen to commence laying. Should she not meet the drones during her first trip the laying may be delayed for a few days. A fertile queen is known by her laying eggs in worker cells in a regular manner. It does not matter in which hive the drones are. When your artificial swarm sent off a natural swarm on the 1st June, you might have saved a week by introducing one of the queen-cells from the stock-hive.

Query No. 618.—*Removing Bees from Combs and Sections.*—Will you be so kind as to let me know the best way of removing the bees from the comb when filled with honey, without killing many; or on taking away supers when filled; how to make the bees leave them, and return to the hive? I always have considerable difficulty in managing this, and I have no doubt that many more of your readers are also troubled in a similar manner?—Herbert S. Saunders, *Blackheath, Kent.*

Reply to Query No. 618.—The bees having been quieted by means of smoke, raise steadily the comb and shake off the bees, removing adhering ones by means of a goose-wing. To remove sections, blow some smoke among the bees from the top, then raise the sections and repeat the smoking. This will cause the bees to beat a retreat, when it will be easy to remove the sections and clear them of the remaining bees.

Query No. 619.—*Uniting Condemned Bees.*—I want to know how to place two or three skeps of condemned bees into a bar-frame hive. Have I to remove all the queens but one, or can I drive them separately and mix them afterwards, queens and all together? Should like to know in the next number.—J. W. Leggett.

Reply to Query No. 619.—If you are unable to utilise the spare queens, the bees will settle that matter. Drive all the bees from the condemned hives and mix them well together, after having sprinkled them with scented syrup. Arrange the combs in the bar-frame hive as they are to remain. Sprinkle the combs likewise, and pour in the united bees into the hive. It is advisable that this should be done in the evening. Feed well with syrup, and a good colony will be the result.

Query No. 620.—1. *Transferring.*—Will you kindly inform me if, after the first swarm from a hive, the remaining bees can be driven and transferred to another? I have just begun with a bar-frame hive, and am anxious to increase my stock, but am rather ignorant of its management at present. If the bees cannot be transferred at once, what would be the best time? 2. *Placing Supers on Hive.*—I should also be glad of any information with regard to supers on the bar-frame hive: I have obtained 'Abbott's Prize Super Crate,' and have successfully hived a first swarm in my bar-frame hive. How shall I know when the super is required? 3. *Obtaining 'Journal.'* I get the *Bee Journal* through my bookseller, but for some reason it comes very irregularly.—Miss E. Verrall, *Corfe, Taunton.*

Reply to Query No. 620.—1. Twenty-one days after swarming the bees may be driven and transferred to the bar-frame hive. For management of bar-frame hive consult *Modern Bee-keeping,* price 6*d.* 2. Supers may be placed on hive, when the hive is full of bees, when the weather is fine, and when the income of honey is abundant. 3. Send your subscription for *Bee Journal* to Mr. Huckle, King's Langley, and you will receive it without fail on the day of publication.

Query No. 621.—*Introduction of a Swarm into a Neighbours' Observatory Hive.*—Will you kindly inform me in your next issue of the *B. B. J.,* how I can best introduce a swarm of bees into one of 'Neighbours' Observatory Hives?' I wish to stand it in a different position to that occupied by any of my present stocks; and I do not wish to let the latter swarm naturally. A natural swarm would be I imagine, too strong for good observation.—F. Simmonds, *Tunbridge Wells.*

Reply to Query No. 621.—The swarm having been procured, it must be temporarily hived in a common straw hive, then dislodge the bees from this into the glass stock hive; the straw cover must be kept on, and the entrance closed for a few hours to reconcile them to their new domicile. The light should not be admitted for some days after hiving, if undisturbed they will speedily build comb, working from the wooden bars, which are placed there for their assistance and support. In ten days or a fortnight, if the weather continues fine and warm, they will prepare to swarm again, the opening at the top must now be unstopped, the bell-glass put on, a piece of guide comb having been previously fixed to the zinc tube, covered and protected by the straw cover, all signs of swarming will at one disappear, the bees having increased store room which they fill with their treasured sweets. The ventilator should also remain open during the day to allow the hot air to pass away from the interior. When the glass is to be removed and every cell is sealed over, with a knife separate the combs from the stock and bir, then pass one tin plate under the glass and the other under that, so that the two plates lie one upon the other, thus the bees in the upper glass will be prisoners, and those in the lower one will be prevented from escaping when it is removed — the proper time to do this is in the morning of a fine day

when a large number of the bees are absent—before dusk lift off the full glass with one tin plate, set it on the ground at a distance from the hive, turned upside down, when the bees will manifest eagerness to escape from their imprisonment, and on the tin plate being taken off will speedily return home. If the weather is unfavourable, so as to prevent the bees leaving home for a few days after being hived, it will be necessary to feed them.—N.

Query No. 622.—*Wasps.*—What is the best way of keeping wasps out of hives? I have had the question often asked me lately, and should like to have the advice of the Editor.—N. A.

Reply to Query No. 622.—Wasps do not injure bees. They are very predaceous, and will plunder the honey-stores if they can reach them. To keep them out of the hive the colony should be sufficiently strong to resist them. Hives should be well made, the entrances narrow, and the edges close, so that the bees should only have one opening to defend. It is, however, better to reduce their number by destroying queen-wasps in early spring, or to find their nest, and insert into it a gill of turpentine, closing the entrance with a plaster of soft clay. It is also desirable to furnish wasps with a counter-attraction to the honey by placing in the vicinity of hives an open bottle filled with some sweet liquid.

Query No. 623.—1. *Number of Frames.*—In how many Standard frames with one-inch foundation is it advisable to confine large swarms of 3 lb. or 4 lb.? 2. *Introduction of Queen.*—With conditions as above, how soon is it well to introduce a Ligurian queen? Is it necessary to cage her? If so, for how long? 3. *Inspecting Hives.*—Is it disadvantageous to inspect frames frequently? How often may it reasonably be done? 4. *Thicknesses of Quilt.*—Is it well to place for warmth, during summer months, any covering beside three thicknesses of quilt bought with hive?—M. E. P. *Southampton, June 8.*

Reply to Query No. 623.—1. On six frames. If the weather prove fine; after a few days insert another frame in the centre, repeating the process until the hive is full, being careful always to insert the new frame between two others nearly completed and towards the centre. Why not give whole sheets of foundation, filling the frames? We find wired foundation best, as it neither saggs nor falls if let into the top bar, and secured by a couple of small screws, and the bees build it out quickly, and breed in every cell, thus saving much time and trouble. 2. Not until the autumn, September or October. The price will be lower then, and the queens more likely to be of the present season, which is a great advantage. Also the combs are in less danger of breaking down while being handled. When inserting frames, great care is necessary in moving the newly-built combs, which are very tender and easily fall, especially in hot weather. It will be necessary to cage your queen. We consider the 'pipe-cover cage' the best after many years' trial, and the introduction of many hundreds of queens with scarcely a failure. Take away the old queen, and cage the new one immediately between brood and honey-cells. She will almost always be received after twenty-four hours. 3. Examine your hives only when necessary. In the three or four summer months, when fine, it does no harm. Otherwise you will do well to disturb your colonies as little as possible. A great deal depends on the manner in which the examination is made. A skilful expert will inspect a hive quickly, silently, and quietly, with scarcely any disturbance; but there are few who can rightly claim this title. 4. No, provided you keep the threefold quilt close to the frames. We use a flat straw cover—wrought in a light square wooden frame, fitting the top of the hive—over the quilt, with a small weight placed upon it, keeping all in place, and ventilating well in winter and summer.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Osbert Ward.—*Bees not taking to Supers.*—The reason your bees do not take to the super is probably that their income is only sufficient for the sustenance of the large amount of brood. Having nine Woodbury size frames, all, even the outside ones, full of brood, your stock is strong enough to divide. If you do this and put your super on the stock, they having, until a queen is reared, no brood to attend to and a large number of bees hatching out daily, will probably gather a surplus of honey and fill your super. The super must be kept warm by wrapping up. You need not care about the building between the frames and bottom of supers.

Ebor, *New Barnet.—Best locality for Bees in the Neighbourhood of London.*—It is difficult to say which is the best district. As in one year one may be the best, and another year a different locality. The neighbourhood of the large seed-farms in Essex and Herts would be good, or the borders of one of the Surrey Commons for the heather, or the fruit-growing districts in the valley of the Thames for early fruit blossoms. Keep away from railway stations or you will soon be surrounded by bricks and mortar.

Subscriber.—*Treatment of Foul Brood.*—Carefully read Reply to Query No. 582, page 18, May 1. The salicylic acid will not dissolve in cold water without the addition of borax, but does so easily with it.

F. W. S.—*Comb v. Extracted Honey.*—Refer to Reply to Query No. 582 (2), page 35, May 15, where a correspondent puts forward the same query as yours.

Miss Nugent.—*Laurel Leaves.*—There will be found near to the base of the mid-rib of the laurel-leaf, and close to it on either side, two or three small glands, which are the objects the bees are in search of. From these, when tapped, a nectar or honey-dew is distilled and gathered. Would our correspondent note if the honey gathered by the bees from the above source is of a sea-green colour, and kindly take the trouble to report?

J. Shearer.—We are pleased to acknowledge your kind appreciation of that portion of the *Journal* devoted to 'Queries and Replies,' and your thoughtful suggestions for their improvement.

Rev. J. Lawson Sisson.—We thank you for forwarding your sketches of skeps with covers, but they are so similar to the one given from Mr. Rusbridge's book, and to those about to be published in the new edition of the *Manual*, that we should not be justified in going to the expense of engraving them.

R. D.—*Hybrids.*—The bees in the four boxes are all hybrids, hence the irascibility of which you complain. No. 4, 'the swarm,' retains best the Ligurian strain; one of the bees has the true Ligurian markings, the others are not quite so distinct.

E. C.—*A false Alarm.*—Be reassured. The box contains freshly-gathered pollen in the cells, not what is apprehended.

Rev. H. Smith, *King's Lynn.—Early Destruction of Drones.*—See Reply to Query No. 614. Rev. C. Butler (*Feminine Monarchie*) says, 'Those that soonest rid their drones are likely to be forwardest next yeere.'

*** Some Replies and Echoes are postponed to our next issue.

Death from a Bee-sting.—On Monday evening, the 11th inst., an inquest was held at Torworth, near Retford, on the body of a farmer. It was shown in evidence that the deceased, when in his garden, was stung on the forehead by a bee, and that he died almost immediately from the effects of it.

THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

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Editorial, Notices, &c.

BEE-STINGS.

It may seem strange to some that announcements headed, 'Death from a Bee-sting,' should appear from time to time in this *Journal*. These disastrous occurrences would seem to be the last matter connected with bee-keeping to which we should be anxious to draw public attention. Such announcements no doubt create a temporary panic, and deter many persons from engaging in the pursuit which we are anxious to encourage. To suppress them would, however, be as useless as it would be dishonest. They appear in all other papers, so that the fact that death has resulted from a bee-sting cannot be hid. It is far better to face the fact and to inquire whether any discouragement to bee-keeping should be allowed to arise from it.

Few pursuits can be followed without some personal danger. We read continually of fatal accidents in the hunting-field; fatal accidents at shooting parties; fatal accidents in boating, bathing, and bicycling. On the date of our writing this article (June 26th), an announcement appears in a London paper headed, 'Death in the Cricket-field.' But is hunting, or shooting, or any other sport, carried on less vigorously because they have been fatal to some individuals engaged in them; and will any member of the Oxford or Cambridge Eleven be deterred from going to the wicket to-day because cricket has been the cause of a fellow-mortal's death? The fact that a sport is not unattended with some personal risk seems in an Englishman's eyes to lend enchantment to it, and to make it all the more worthy of being pursued. It is this spirit no doubt which tends to form our national character, and gives Englishmen in the day of battle that longing to come to close quarters with the enemy, though death may seem to be inevitable, which makes him so formidable a foe in the eyes of other nations.

But with all due respect for personal courage, no sensible person can attempt to justify those who engage in pursuits and sports which involve a risk to human life without taking proper precautions against their liability to a fatal termination. Courage in such cases degenerates into rashness and foolhardiness. If a man does not look well to his girths and stirrup-leathers he has only himself to blame if he gets an ugly fall when out hunting. If he does not keep his gun clean, or is careless as to the line of fire of those who are shooting with him, the fault will not fall solely upon the gunmaker if his gun should burst, or upon his companion if he should be shot. Leaky boats and rotten oars increase the dangers of boating, and a man is not less brave if he guards against these. And to bring the matter nearer home, the cricketer who goes to the wicket without gloves or pads will receive little pity if he gets his finger smashed or his ankle broken.

Now what gloves and pads are to the cricketer, the gloves and veil are to the bee-keeper. The gloves and veil give him a perfect immunity from any fatalities arising from bee-stings; and if he despises these protections when he is engaged amongst his bees, he has only himself to blame if he gets stung at all. Stings on the hand cannot be (except in very exceptional cases) fatal to human life; and the experienced bee-master will probably accept such stings as these as the condition of his being able to use his hands with freedom. But stings in the eye and mouth are a different matter altogether; and we wish that our experts, when giving displays of manipulation in the bee-tents, would always wear the veil, if only to show the spectator how easily they may avoid being stung in dangerous places. The spectator seems often to think that these exhibitions are intended to prove that bees do not sting when handled fearlessly, and in trying the experiment on their own bees are soon cruelly undeceived.

To sum up the matter, then, we think that no bee-keeper need be frightened away from his pursuit by the recurrence of announcements of death from a bee-sting. He has the means of protection within his reach, and he is to be blamed if he does not use them. But if these fatal cases are inquired into, it will, we think, be generally found that it is not the bee-keeper who is the victim of the bee-sting, but some person unconnected with bee-keeping altogether, who comes into contact with a bee in a garden or in the field when it is in an excited or angry mood.

It may be a wild bee, whose home is in a hollow tree or a church roof, as well as one of our domesticated bees, who are nurtured so tenderly and brought up with so much care. The death is often attributable to excessive fright, or over-excitement, rather than to the actual poison of the sting itself. Death has been known to result from the wrong application of remedies in these cases. Whilst we admit, then, that the sting of the bee is, in some cases, fatal, we feel justified in asserting that the bee-keeper who is constantly handling his bees has an advantage in this respect over the non-bee-keeper. Independently of the means of protection which are within his reach at home, and the remedies which are always in store there, he has acquired that coolness and presence of mind which are likely to stand him in good stead if attacked abroad; and he knows how to devise remedies on the spur of the moment, if the ordinary remedies are not ready to his hand. We have never yet heard of any of our experts or our experienced bee-masters having met their death by the sting of a bee, and we most fervently hope that it may never be our lot to record such a catastrophe in our columns. Then, but not till then, may the bee-keeper give up his favourite pursuit, and devote himself to chess tournaments, in which he may risk his reason, but not his life.

THE COMING EXHIBITION AT KNIGHTSBRIDGE.

We are pleased to acknowledge the response which has been made to the appeal made in our last issue in respect to entries for honey at the forthcoming Show. The entries in the honey classes are very considerable, being much larger than for several years past.

Entries for hives and appliances are not quite so large as last year; the Exhibition will, however, be quite equal, and in some points superior, to that of any previous Show. Practical instruction in the art of bee-keeping will be given, the modern methods of managing bees being fully explained by the most advanced bee-keepers. We venture to hope that bee-keepers will appreciate the endeavour of the Committee to make the Exhibition thoroughly attractive and instructive by attending the Show themselves and making it known amongst their friends. The following is the—

PROGRAMME OF ARRANGEMENTS FOR THE SHOW.

Thursday, July 5th.—Judging commences at 10.30 a.m. Show opens at 1 p.m. Four p.m., Quarterly Meeting of the Committee,* for the purpose of conferring with representatives of County Associations. Five p.m., Conversazione.* Subject for discussion: 'The Adulteration of Honey and Wax;' to be introduced by Otto Hehner, Esq., F.S.C., F.I.C.

Friday, July 6th.—Show opens at 10 a.m. Three p.m., General Meeting of the Members of the Association.* The Baroness Burdett-Coutts, President of the Association, in the chair. At the close of the above meeting, the prizes will be distributed by the Right Rev. the Bishop Suffragan of Nottingham, President of the Lincolnshire Bee-keepers' Association.

Saturday, July 7th.—Eight a.m., Examination of Candidates for Certificates of Proficiency in Bee Management.* Show opens at 10 a.m. Four p.m., Special Lecture by Frank R. Cheshire, Esq.: 'The Structure of the Bee in relation to Fertilisation.'

Monday, July 9th.—Show opens at 10 a.m. Four p.m., Special Lecture by Frank R. Cheshire, Esq.: 'Bees as Hybridisers and Fruit Producers, or the Dependence of Orchard Crops upon Bees.'

Members of the Association attending the Show will be required to bring their tickets of membership, otherwise they will have to pay for admission to the exhibition.

BEE PREFERENCES.

Bees are certainly not attracted by the fragrance of flowers, nor by the brightness of the hues they exhibit. This fact has been brought very forcibly to my notice by the chance association of bright and very fragrant flowers with others possessing neither of those qualities, and which, nevertheless, secured the undivided attention of the swarming bees. There are few more unattractive fruit-blossoms than that producing the raspberry, and its odour is of the faintest, yet it enjoys a preference beyond the brightest flowers. The nectarous glands secreted at the base of the calyx seems a special provision to attract bees, so that, in sucking the tempting food, they fertilise every floret of the fruit.

As an illustration of the indifference of bees to the attractions of sweetness and brightness, a large space of ground was covered with sea-kale, masses of its creamy-white blossoms caught the eye at a great distance, while the honeyed fragrance it exhaled could be perceived at a distance of fifty yards, yet not a bee visited it, though the family to which it belongs, Cruciferæ, is generally in favour with the insect. In some localities bees are gathering a good store of food from the wild Charlock or Redlocks. This has even greater attraction than the bean-blossom now abundantly available. One of the Brassica family, the familiar Scotch-kale, has larger blossoms than the other kales or turnips, and the base of the flower cannot readily be reached from its mouth. The bees have found that its secretion can be attained through the loosely fitting petaloid prolongations that form the tube of the blossom, and now they invariably settle on this part, not trying to enter by the throat. The smaller flowers of the Buda-kale are investigated from the open throat, seemingly without hesitation, as if the fact were known to all the bee community, that one flower is impracticable from one point, and another singularly like it not so. The quick adaptive power of bees in this case seems worth recording.

Limnanthes has continued to bloom and to attract bees throughout the month; successional sowings should be made, even as late as October. The very pretty and free blooming Veronica rupestris has shared with the above flower the favour of the bees in June. Dutch-clover and buckwheat are amongst the first flowers visited in their early morning flight.—W. INGRAM.

* These meetings will take place at 17 High Road, Knightsbridge, immediately opposite the Riding School.

USEFUL HINTS.

STRONG STOCKS.—The wisdom of adhering to Oettl's golden rule, 'Keep your stocks strong,' has been amply proved during the preceding month. Those hives which have been so attended to have brought their own reward, while those which were weak are now barely in fair order. The honey yield is gradually lessening, partly because there are not so many flowers, but chiefly because the nights have been cold, during which there has been little honey distilled in the flowers. Yet there has been sufficient for general daily consumption, and in many hives a surplus. As we write the wind whines more like October than midsummer.

FEEDING.—Be vigilant and feed if necessary; undoubtedly we shall get another good spell this season, so let your bees be kept up to the mark if you desire to profit by it.

SWARMS FROM SUPERED HIVES.—Swarms issuing from hives with supers on partly filled is most annoying. If you wish your super filled, and are not anxious to increase your stocks, examine the hive and cut out all queen-cells save one. There is some difficulty about this with skeps, but when comparatively empty of bees, you may generally see most of the queen-cells in bar-frame hives; it is more simple. Having set the hive on stand and placed super on as before, open the flight-hole to full extent, go to the swarm, and having shaken them into a skep as usual, shoot the lot on to a board or sheet of paper weighted at corners; now place the skep at one end of the board or sheet tilted up on a brick or stone, and you may readily see the queen, as the bees hurry off into the skep, pick her up and walk away with her, and you will find the bees return to their old home in a few minutes. Evening is the best time to do this. The hive, if a bar-frame, should be examined again five days after to see if the bees have constructed extra queen-cells; if a skep, listen attentively late at night, up to the twelfth after swarming, for 'piping,' which is a pretty good indication that you will get one or more swarms, or rather 'casts.' If there is no piping you may hope they are content with the one queen-cell, and to fill their supers. Note.—Skeps thus treated require to be watched for signs of queenlessness; in bar-frame hives this can easily be ascertained.

JULY SWARMS.—July swarms were reckoned worthless by our grandmothers. They are not of much value to us for profit this season, except in heather districts; but with modern facilities, wax foundation, &c., they can be easily built into good stocks; and if the queen be

judiciously kept laying on late are most valuable for next spring, or should easily find purchasers now as there are so many persons anxious to commence bee-keeping.

Casts.—Casts should certainly be returned by removing all queens, frequently from one to a dozen or even more, as they weaken the old stocks to such an extent that they scarcely recover it in one season.

Bees in Transit.—Bee shows are commencing in right good earnest, and we fear we shall be pained by seeing skeps brought to shows for driving purposes, &c., tied down on to their floor-boards, and a piece of rag stuffed into the flight-hole. We have seen six such ruined at one show by suffocation. They should always be removed from the floor-board, inverted, and tied down with cheese-cloth or coarse canvas when travelling, if only for one mile.

Transferring.—May we ask secretaries of County Associations to discourage transferring in the bee tents at shews except at the last '*display?*' Wax-foundation has rendered transferring almost obsolete; and although it is well for all bee-keepers, and absolutely requisite for experts, to know the process, yet it so often leads to robbing and the accompanying evils as to make the tent unpleasant for the remainder of the day.

Cabbages, &c.—Avoid planting winter greens of all kinds immediately in front of your hives. Cabbages, &c., have proved the icy bed of many a tired worker that has alighted on their leaves only to slip down into the hearts, and so meet their death and not improve the vegetable.

Removing Supers.—As a general rule, when supers have been well and quickly filled, the hive frames will be clogged with honey, even to the excluding the queen from the brood-nest, and the swarming fever having been altogether checked, or kept in abeyance, there will be a listlessness about the bees, and idleness will ensue at a time when activity is most required in the breeding of bees for wintering. As a remedy the outside combs should be passed through the extractor, say two on each side, and even the centre ones if filled with honey, immediately on the removal of the super, and the combs given back for the bees to clean. This will arouse the energy of the hive, and set the queen laying, and the result will be a populous colony for going into winter quarters. Feeding must of course be resorted to if necessary, during the autumn months. Checking the natural swarming propensity, if no remedy be applied, will in numerous instances result in the ruin of the stock. Inserting a couple of empty worker-combs in the brood-nest, and removing the outside ones, gently stimulating at the same time, will often have the desired effect. At all risks never allow a colony to remain idle when honey is to be had in the fields.

Second Swarms.—If it is wished to prevent the issuing of a second swarm, the colony should be examined eight days after the first swarm. Open the hive, take out each of the frames, and see if any of the queen-cells are open; if so, you know that a young queen is at large in the hive, and probably you may find her on one of the combs. Cut out all the queen-cells remaining, which can be utilised for nucleus hives if more queens are desired.

ASSOCIATIONS.

WORCESTERSHIRE BEE-KEEPERS' ASSOCIATION.

The exhibition by the Worcestershire Bee-keepers' Association at the Worcestershire Agricultural Show, on the 19th, 20th, and 21st ult., was both interesting and instructive. The arrangements for this show were ably carried out by Mr. Martin, of Evesham. The exhibits were staged in a tent, and there was a manipulating tent in which the experts operated. The judges were, the Rev. Norman Ogilvy, Hanbury Rectory, Bromsgrove; Mr. H. V. Edwards, hon. sec. of the Derbyshire Bee-keepers' Association; and Mr. C. W. Summerskill, expert of the Warwickshire Bee-keepers' Association. Mr. Brown was the expert of the Worcestershire Association, and he was assisted by Mr. Hole, of Ledbury, and Mr. Haynes.

Bees.—Best stock of bees, of any race, exhibited with their queen, in an observatory hive: J. R. W. Hole, Tarrington, near Ledbury. Best and largest collection of hives and bee furniture: T. B. Thompson, Birmingham. Best and strongest stock of bees in a straw skep, shown by a cottager residing in the county: 1st prize, George Davis, Witton; 2nd, S. Phillips, Upton-on-Severn.

Honey.—Best super of honey, not being sectional, weight not less than 6 lbs.: S. Townsend, Bath. Best twelve 1-lb. sections of super honey: 1, R. W. Lloyd, Badminton, near Chippenham; 2, C. H. Haynes, Hanley Castle. Best exhibition of extracted or run honey in six 1-lb. glass jars: R. W. Lloyd. Largest and best exhibition of new honey in glass jars: Mr. A. H. Martin.

Hives.—Best bar-framed hive, made within the county, price not to exceed 10*s.* 6*d.*, fitted complete with sections: C. Brown, Dudley. The best, complete, and most practical hive on the moveable-comb principle: Mr. W. Partridge, Bromsgrove. Best, complete, and most practical hive on the moveable-comb principle, with arrangements for summer and winter use, price not to 10*s.*: 1, T. B. Thompson; 2, J. R. W. Hole.

The manipulations in the bee tent on the third day of the Show, June 21, were well attended, and the bee tent was crowded with people. The Mayor of Worcester personally congratulated the Hon. Sec. on the success which had attended his exertions, and on the interest which had been awakened. The Association now consists of more than a hundred and fifty members, which is highly satisfactory, considering this is the first year of its existence.

CORNWALL BEE-KEEPERS' ASSOCIATION.

The second Annual Exhibition was held at Truro on June 20 and 21, in connexion with the Royal Cornwall Agricultural Show, when a most interesting collection of bee appliances was drawn together. The appliances were placed in the horticultural tent, and, by a happy choice, the honey was placed in close proximity to the cream—two remarkably good things together. The season is rather backward, but, notwithstanding this, there were some wonderfully well-filled sections of honey on view. The exhibitors of apiarian appliances were Messrs. Richards and Honey, of Exeter, and Messrs. J. and C. Harris, of Truro, both of whom had good collections of bee-furniture in Class 1. In Class 2, Mr. W. N. Griffin, of Alphington, showed one of his celebrated 'Griffin' hives. Class 6 was for hives made by members of the Association, and here the competitors were Messrs. J. and C. Harris, Mr. J. Lander, of Laveddon Mills, Bodmin, who showed his Cornish Duplex hive, and Mr. J. Wilcox, of Tiverton, with one of his round straw hives, fitted with bar-frames. We should also mention that the Rev. A. H. Malan, Perranarworthal, exhibited, but not for competition, an observatory hive of his own design and construction. The collection shown by Messrs. Harris also included an observatory hive, which was stocked with bees with their queen, and proved one of the great attractions of the show. In a tent of the British Bee-keepers' Association, the mode of manipulating with bees was demonstrated by Mr. J. Sampson, of Liskeard, one of the members of the Cornwall Bee-keepers' Association, assisted by lectures each

day by the Rev. C. R. Sowell, of St. Gorran, a member of the Committee, and Mr. W. N. Griffin. The judges were the Rev. A. H. Malan, of Perranarworthal, and Mr. J. Branwell, jun., of Penlee, Penzance, and the awards were as follows:—

Collection of hives and bee-furniture most applicable to modern bee-keeping; Open Classes: 1st, Richards and Honey, Exeter; 2nd, J. and C. Harris, Truro. Moveable-comb hive for general use, price to be taken into consideration; 1st, W. N. Griffin, Exeter; 2nd, J. and C. Harris. Moveable comb-hive for cottager's use, price not to exceed 10*s.*; 1st, Richards and Honey; 2nd, J. and C. Harris. Open to Members of the Cornwall B. K. A.: Moveable comb-hive for cottager's use, price not to exceed 10*s.*; 1st, J. Lander, Bodmin; 2nd, J. and C. Harris, Truro. Sectional super of comb-honey; Silver medal, Mrs. Tomlinson, St. Michael Penkivel; bronze medal, Mr. G. H. Fox, Falmouth; certificate, Mrs. Williams Hockin, Flushing. Best and strongest straw skep of bees (not a swarm of the current year); first day, Mr. Hall, Kenwyn. Ditto, second day, Mr. S. Pengelly, Portreath.

BERKS BEE-KEEPERS' ASSOCIATION.

The above Association erected their tent on the show-ground of the Marlborough and Pewsey Vale Agricultural Society at Newbury, on June 19th and 20th. Visitors who had been present on similar occasions in neighbouring counties were much disappointed at finding no exhibition of bee-furniture, many having come with the intention of taking hives, supers, &c. home with them. There were many inquiries for the Hon. Sec., but neither he nor any of the committee put in an appearance; and so many new members were, for the time, lost to the Association, and unfavourable remarks were freely made on the management.

Not even the appointed 'expert' of the Association was present, nor Mr. Blow, who, it was understood, would give addresses on bee-keeping. These gentlemen were represented by deputies, two young men evidently well up in manipulating, and determined to do their best, but quite unaccustomed to lecturing; neither was it possible for them to do much in their way, one having to take the money at the door and the other to do all the miscellaneous work inside the tent, to get through as best he could; and both deserve much credit for the cheerful way in which they went about their work. Fortunately for them, on the second day they received some assistance from two gentlemen from a distance well used to bee-shows, who (by the merest chance) happened to look in in the vain hope of finding the Hon. Sec.

As it was pretty generally known that the Marlborough and Pewsey Vale Society had invited the Wilts Bee-keepers' Association to hold a bee-show (as at Hungerford in 1881) on this occasion, the remark was freely made, 'What a pity it is that they did not come!' They certainly would gladly have done so, and got up an attractive prize-list, but that they felt they could not visit Newbury without the co-operation, or at all events the consent, of the Berks B. K. A., which was declined. Notwithstanding all shortcomings and unsettled weather, on the second day the receipts, it is said, were very satisfactory, although the bee-tent was in by no means a conspicuous part of the show grounds. It would probably be worth while to have (as part of the regular equipment of the bee-tent) half-a-dozen light hand-posts to stick up in suitable places: 'This way to the Bee-tent. Admission 6*d.*,' and also a conspicuous notice at the door stating certain hours at which driving, &c., will take place, arranged (as far as possible) so as not to clash with the trials of implements, races, jumping, &c., or other chief attractions of the show. A sale counter, too, nicely decorated, for honey, is very attractive, and generally profitable. On this occasion a few nicely filled sections were exhibited and sold by Mr. Woodley, of World's End.

CAMBRIDGESHIRE BEE-KEEPERS' ASSOCIATION.

A Committee Meeting of this Association was held at Sidney Lodge, Cambridge, on Friday, the 8th June. After the former minutes had been read and confirmed, the Hon. Secretary, the Rev. A. T. Crisford, stated that he was most reluctantly compelled to resign the position of Secretary to the Association, as he had been presented to the Rectory of Ovington, in the county of Norfolk. The Rev. A. T. Crisford was duly elected a member of the Committee during the time he remained at Great Shelford, and Mr. J. E. L. Whitehead was unanimously elected Hon. Secretary.

Mr. Tyler reported that the bee tent was nearly complete, and would, he hoped, be ready for use at the Horticultural Show on the 14th June.

MIDDLESEX BEE-KEEPERS' ASSOCIATION.

On Monday evening the 25th ult., a first formal meeting of this Association was held at the 'Feathers' Hotel, Ealing, when, of a most numerous attendance, there were amongst others present Messrs. Rose (in the chair), J. L. Shadwell, A. Robinson (of Sutton), Cooper, Gardiner, H. E. Shadwell, Henderson, Dean, Watkinson, Reading, Hewlings, Stephens, Loder, Pownsdell, and B. G. Wilson, Hon. Sec. Previous to this meeting a preliminary one had been called at the instigation of Mr. H. Wilson, who was instrumental in inaugurating one of the Associations now affiliated with the parent Association, and who, from observation and inquiry in and around Ealing, formed an opinion that Middlesex should, of all counties, be on the list of the Associations of England, and at this meeting the resolutions provisionally arrived at at the preliminary meeting were confirmed.

After the usual business of electing the necessary officers, viz., Messrs. Rose (Treasurer), B. G. Wilson (Hon. Sec.), Pownsdell (Auditor), and Messrs. J. L. Shadwell (Ealing) and A. Robinson (Sutton) experts to the Association, a Committee was elected to consider and frame the rules.

Mr. Dean, Hon. Sec. of the Ealing, Acton, and Hanwell Horticultural Society, attended, and offered to the Meeting the use of a tent at the forthcoming Horticultural Show at Ealing on July 11 next, for the exhibition of bees, honey, hives, and bee apparatus generally, which generous offer was unanimously accepted with thanks.

Prizes of the value of about 5*l.* were then offered by the members present to be competed for at the autumn Show.

[We gladly insert the above communication, and are pleased that Ealing has had the honour of taking the initiative in the establishment of the Middlesex Bee-keepers' Association, as we remember that the germ of the British and its affiliated Associations took its rise in Ealing; the promoter (C. N. Abbott, Esq.), its first secretary (J. Hunter, Esq.), and its original committee being chiefly residents in that locality.]

THE MOUTH OF THE STOMACH IN THE BEE.*

BY PASTOR SCHÖNFELD.

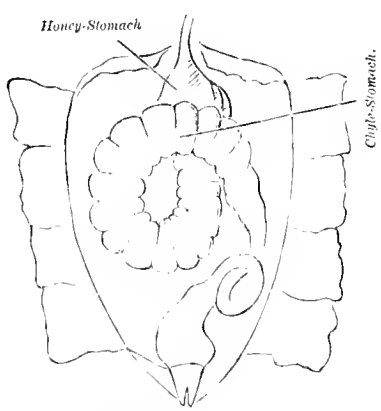
(Translated by S. Stutterd from the *Bienenzeitung*, No. 9, May, 1883.)

Dr. Dzierzon opened the discussion at the last meeting at Wiener-Neustadt with the remark that when he himself has to choose the special subject of discussion it always causes him some measure of painful embarrassment, because the field of bee-culture, which is not of

* Readers of Pastor Schönfeld's article will find it additionally interesting and instructive if they take the trouble to extract the bee's alimentary canal and then follow the writer step by step with the object before them. Pressed

very wide area, has been already so scrutinised and investigated that it is difficult to propose anything new that has not been inquired into and experimented upon. Doubtless, in saying this, Dr. Dzierzon was simply thinking of his own feeling, and was not offering a general judgment as to the present position of apistical science. For if his utterance were to hold good generally, if there were nothing new to be discovered in the life and instinct of the bee, then our entire further investigation would, at one stroke, have come to an end, and the *Bienenzeitung* could with comfort bring its columns to a conclusion. But we are not by any means arrived so far as that. The bee is such a marvellous insect that her life still affords hundreds of mysteries and enigmas, the deeper we dig and investigate the more do the richer fountains of knowledge open themselves before us, and we come to comprehend that work enough will be left over for our children and for the next century.

What is there that is a more every-day matter and better known than eating and drinking? Very well, how does the bee eat and drink then? How does she maintain her life? Who can give the answer? Who has at any time investigated how the nutritive material in the bee reaches its stomach? The question is by no means so idle and superfluous, nor yet so easy to answer, as any one may think. It is well known that there is no direct communication between gullet and stomach, so that everything she swallows down does not necessarily reach the stomach, as is the case with us and other creatures; we know that it comes out of the gullet first of all into the fore-stomach, or honey-bag. But this has no more to do with the nourishment of the bee than our provision-room has to do with our nourishment. What, therefore, the bee requires of nutritive material for her own nourishment, for preparation of brood-food, and for production of wax, must first, by a special contrivance, be taken out of the honey-stomach, the provision-room of the bee, into the chyle-stomach. But this contrivance is nothing



Abdomen of bee, laid open to show position of honey-bag and chyle-stomach.

more and nothing less than a second internal mouth, which extends into the honey-stomach free, and whose gullet is partially combined with its walls; we may, therefore, with perfect right apply to this internal mouth the name of mouth of the stomach (*Magenmund*).

But it will not now appear to any one a thing idle and superfluous to investigate in what way the bee eats and drinks with this internal mouth, how it is constructed, and for what special reasons such an extremely wonderful organ (for we do not find the same arrangements anywhere else in the same way) is inserted in the body of the bee.

And if just here I add further, that we have before us in this mouth of the stomach one of the most important internal organs of the bee, on whose presence the entire existence of the bee depends, not only must our most lively interest be awakened for a discussion and investigation of this object, but also our astonishment that the entire bee literature has hitherto made no mention of such an important organ. No mention of it is made by Schmid and Kleine in their excellent guide for instruction in theory and practice, nor yet in the larger works of Von Berlepsch and Vogel, nor yet by the *Bienenzeitung* in its thirty-nine years of issue. In the latter it is alluded to on one solitary occasion. Dönhoff asks, as a proof that he does not know it (*Bienenzeitung*, 1856, p. 28): 'Has the small body that one sees in the honey-stomach any part to play in the secretion of the chyle as brood-food?' Also, what exact natural science knows of this organ is extremely little and defective, and further entirely inappropriate and false. Swammerdam, the sagacious investigator, does not know anything more of it than that it is somewhat button-like and enclosing within it an apparatus of a colour shading from yellow to red (*Book of Nature*, p. 196, Eng. Ed.). Treviranus (*verm. Schrft.* II. S. 95) knows the organ very much more accurately. But he considers it only as a 'valve with four divisions by whose rhythmically successive opening the sucking in of the honey into the "suction-stomach" (*Saugmagen*) is maintained.' This false assumption comes from the erroneous view of this learned man that the honey-stomach acts as a suction-stomach, which has been thoroughly refuted by Wolff (*Riechorgan der Biene*, S. 45). Also, Ramdohr, whose treatises on the digestive organs of insects still retain their character for thoroughness and excellence, does not appear to call special attention to the organ in any way; for the painstaking Burmeister does not mention him at all in his *Entomology* at the place which has to do with this. Finally, Burmeister (p. 139) agrees with Treviranus, but styles the organ mouth of the stomach (*Magenmund*). But that he does not know it, and has not investigated it more accurately, proceeds from his erroneous view of its function (p. 379), as we shall see further on. More recent inquiries into the subject are not known to me.

Let us then first try to learn the structure of the organ. Fig. 1 of my drawings accompanying this paper shows that a projection of the chyle-stomach, B, penetrates the posterior portion of the honey-stomach, A, a little on one

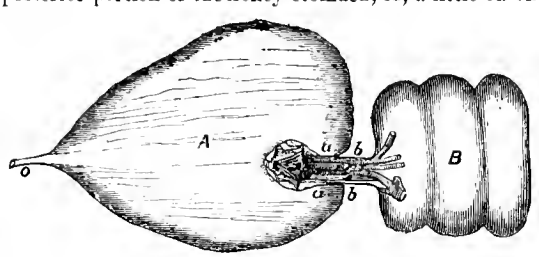


Fig. 1.

side, and projects free about a millimeter ($\frac{1}{25}$ of an inch) into the cavity of the honey-stomach. This projection is the mouth of the stomach; its gullet, which connects it with the chyle-stomach, is connected with the wall of the honey-stomach in such a way that the wall at *b* is not penetrated at right angles, but inflects itself inside and combines with the gullet of the mouth of the honey-stomach very nearly to the mouth itself. If now

between two strips of glass and wetted with a little water, the object may be fairly seen with an ordinary pocket lens. But of course it may be seen much better when the membranes are removed, and it is examined with a good microscope. This little effort on the part of the reader will at the same time give him some idea of the patient labour Pastor Schönfeld has undertaken in giving such a careful description of the structure and functions of this tiny organ. —Translator.

we cut open the honey-stomach and place the mouth of the stomach with its gullet carefully prepared under the microscope, we immediately see in the middle of the organ a very prettily constructed body whose natural colour is an intense yellowish brown. It is made prominent in figs. 1, 5, 6, 7, by darker shading; and it is this apparatus which Swammerdam describes as shading from yellow into red. It is the most important part of the organ. I am certainly justified in calling it the framework of the mouth of the stomach. For it consists of a very hard and touch skin, extremely chitinous, which upwards affords the firm basis for four lips, and below determines the width of the gullet of the mouth of the stomach. The lips, which taper to a rather acute point, form a regular four-sided pyramid, so that each right margin of a lip joins the left margin of its neighbour and so closes the mouth securely. I have, in fig. 2, drawn a four-sided pyramid in order to show our readers distinctly all the four lips in their mutual junction. For the sake of clearness the isosceles triangles are only indicated by their boundary lines. I need scarcely say that in nature the lips do not have the stiff form and shape of a mathematical triangle, which may be very well seen from the other figures. As far as the gullet combines with the wall of the mouth of the stomach, the chitinous formation vanishes,

Fig. 2.

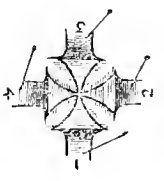


Fig. 3.

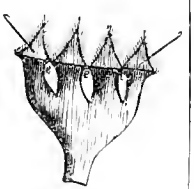


Fig. 4.

and with it the hardness of the skin, so that it becomes very easily compressible here; indeed is so tender that the gullet of the mouth of the stomach regularly breaks off if the taking out of the alimentary canal is not undertaken with great care. Fig. 3 represents the lips cut out separate from the frame-work, and so placed opposite to one another and pressed flat on the paper, that it may be seen how the first lip stands opposite to the third, and the second to the fourth. Fig. 4 shows us the whole frame-work cut open lengthwise between the fourth and first lips, and at the same time pressed flat on the paper. The oval openings below the four angles of the lips appear prominent and worthy of notice here. They serve, not simply to facilitate the change from the four-sided form of the basis of the lips into the round form of the gullet, but also to make possible a freer motion of the lips. In order to secure a close junction with one another, the very sharp margins of the lips are furnished with extremely strong additional borders, rich in chitin, and provided with long reddish brown hairs. The additional border of each separate lip is joined a little under the angles of the lips by hinges to the additional borders of the two adjoining lips (fig. 4, at *e*). In order that these hinges, which bring about the opening and shutting of the lips, may not be rubbed against the hard skin, openings into the skin are situated below the margins of the lips. The additional borders are further not immoveably connected with the margins of the lips, they may be lifted off from the lips by a needle, so doing away with the connexion of the lips one with another. *(To be continued.)*

QUOTATIONS FOR HONEY AND WAX.

Extracted Honey:—

9d. to *10d.* per lb. in bulk. 1 lb. bottles, *11d.* to *1s. 2d.* Supply abundant.

Comb Honey Sections, *1s. 2d.* to *1s. 6d.*

Other forms, *1s.* to *1s. 2d.* Supply abundant.

Wax:—*1s. 4d.* to *1s. 6d.*

Foreign.

SWITZERLAND.

The *Bulletin d' Apiculture* for this month devotes considerable space to a review of British apiculture, and notices favourably the rapid progress which this new industry has made of late years in the United Kingdom. The editor pays a high compliment to the gentlemen at the head of the Central Bee-keepers' Association for their unremitting attention to the interests of apiculture in their country. Speaking of the *British Bee Journal*, the writer records the fact of its being now published fortnightly instead of monthly as before, and praises the discretion displayed by its new editor for filling its twenty pages with matter of general interest, besides eight or ten more of advertisements.

FRANCE.

One of the effects resulting from the numerous local exhibitions now being held on the French side of the Channel is the formation of a Bee Association for the north of France with head-quarters at Amiens. Its constitution is embodied into seventeen clauses, the sixteenth of which provides for the establishment of a journal to be called *Le Rucher* (The Apiary). The new Society also contemplates the immediate formation of a library, and the spreading of apicultural knowledge by means of conferences, the publication of literature, and exhibitions. The temporary office of this Society is at No. 20 Rue Blin de Bourdon, Amiens.

Mr. H. Hamet, Professor of Apiculture at the Luxembourg, Paris, has just published a fifth edition of his *Cours d' Apiculture Pratique*. The book is revised, and contains several additions. It consists of 400 pages, and is illustrated with 164 engravings. The town of Paris has taken 350 copies, to be distributed among local schools and libraries.

Monsieur Fournier has just issued the first number of a new journal, entitled *Le Conservateur des Abeilles.*

The honey markets throughout France have been very dull of late. Last year's yield is exhausted, and buyers are holding back their orders until the arrival of the new crop.

GERMANY.

Apis Dorsata.—Mr. G. Dathe, of Germany, has arrived in Joppa with four colonies of *Apis dorsata.* He is very much disappointed in the fact that these bees will not build comb, neither will they stay on them. One colony decamped, and he was obliged to cut the queen's wings. It is to be hoped that he will reach Europe with his bees alive, to have them to experiment with for the sake of science. It is not believed that the bees are worth anything for bee-keeping.

A Remedy for Bee-Stings.—Writing to the *Sheffield Independent*, a correspondent says:—There will be no more deaths from the sting of a bee or a wasp, if the following remedy be applied. It is very simple, and within the reach of all. When a person is stung by a bee or wasp, let them take a little common whitening, mix it with cold water into a paste, and apply it to the part affected. In a few minutes the pain will cease, as well as the effects of the sting. I have proved the remedy, and know it to be effectual. A gentleman when eating honey out of the comb, was stung in the tongue, which became so swollen that he must have died but for the above remedy. Shortly after the application the tongue was in its proper position and the pain ceased.

Correspondence.

*** All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.'*

All Correspondence must bear the name and address of the writer, not necessarily for publication, but as a guarantee of good faith.

RAILWAY COMPANIES AND RATES OF CARRIAGE OF HIVES AND BEES.

It is a matter of great regret that the request made by the Committee of the British Bee-keepers' Association to various railway companies of the kingdom to grant facilities and reduced rates to bee-keepers for the moving bees, hives, and apiarian appliances, should not have met with a favourable answer; and it is to be hoped that in spite of this one disappointment the Committee will not relax their efforts to obtain this concession—a simple piece of justice—to bee-keepers. As matters at present stand great inconvenience and expense is caused to any bee-keeper who may find it necessary to move bar-frame hives and bees by train, as the following facts, taken from my own experience, will fully show.

It is my intention shortly to send by train a distance of about 100 miles twenty-five bar-frame hives stocked with bees and eighteen such empty hives, and I have therefore applied to the Great Eastern Railway Company to take these bees and hives in a truck or trucks attached to a passenger-train, and to give me an estimate of the price they will charge for so doing. At present it is uncertain whether they can be taken by passenger-train at all, but the impression of one of the superior officials of the Company with whom I have been in communication on the subject is that it will not be allowed. But my chief ground of complaint is that absolutely no provision is made by railway companies for the carriage of bar-frame hives or bees, neither of these coming under any of the classifications in their lists, unless the hives can be classed as 'joinery' and the bees as 'goods not otherwise described.' There is a classification—'straw skeps,' but the rate for conveyance of these is a very high one, and bar-frame hives are clearly not 'straw skeps.' Now the Great Eastern Railway Company's charge for 'joinery,' at Company's risk, is 31*s.* 8*d.* per ton, at owner's risk, 27*s.* 1*d.*, whilst that for 'goods not otherwise described' is the highest of all their charges, the amount of which I had not the courage to inquire. I have now applied to the Superintendent of the Great Eastern Railway Goods Department at Bishopsgate Street, London, asking him to forward these bees and hives by truck attached to a fast passenger-train, and at a lower rate than I could send them as either 'joinery' or 'goods not otherwise described' by goods train (a somewhat hazardous proceeding).

I hope his answer will be a favourable one, and, as this is a matter of some interest to many bee-keepers, I trust you will insert this letter in the next issue of your valuable *Journal*, and in the following one the result of my application to the Superintendent, which I hope to communicate to you in due course.—D. P. MEADOWS, *Evedon, Sleaford, Lincolnshire, June* 25.

THE NEW (?) DIAMOND HIVE.

On page 65 of *British Bee Journal* for June 15th Mr. J. M. Hooker says:—'The Anglo-Cyprian hive is a very old friend under a new name, the principal addition being that of its legs.' The legs even, I contend, are not new, therefore no 'addition' at all. The 'Diamond Hives' of Dr. Conklin in use at the Mich. State Agricultural College in 1870, had just such legs as the hive illustrated on page 3 of *B. B. J.* for May. The most natural thing to suggest itself to the mind of the inventor when once he had conceived the idea of placing the body of a rectangular hive with one angle up, would be to attach legs to hold the body in that position. And this Mr. Conklin did; so I fail to see how the legs form any *addition* to this 'old friend under a new name.'

I presume one great reason this hive did not meet with more general favour in the United States was, that it proved to be very poorly adapted to the extractor, which, as is well known, came into general use there about that time. Facility in tiering-up cases to hold full-sized frames has come to be regarded by nearly every American producer of large quantities of extracted honey as an *essential* point in an extracting hive. A good example of this is the yield of 1000 lbs. of honey secured last year by Mr. Carroll, of Texas, who tiered-up four or five stories. Mr. A. I. Root, editor of *Gleanings*, says, on page 416 of number for Aug. 1882, that he has used them four stories high, and the bees seemed to store honey in them just as well as if but two stories were used. Again, on page 310, *Gleanings* for June, 1883, Mr. Root says this plan is a good one, not only for extracted honey, but for honey in the comb in frames, and says he 'don't know but it will work for honey in sections.' The placing of each additional set of combs *above* those already occupied secures, for each successive set added, that position in reference to the main cluster of bees which will insure their being taken possession of at the earliest possible moment. The heat of the hive ascends and makes these combs warm, soft, and pliable, so that the bees can at once go to work on them.

These advantages are lost in the so-called 'Anglo-Cyprian' (Diamond) hive. For upper stories, if added, would be very awkward to manipulate, and, moreover, would not occupy the position desired. The expansion of the stock by means of a 'dummy,' it will readily be seen, does not secure the advantages just mentioned in regard to warming up and taking possession of combs by the bees. This is another idea tried a few years ago in America, and now pretty generally laid aside. In fact, under the name of the Adair hive (by many called 'The Long-idea Hive') thirty, up even to forty, frames of large size were put into single-story hives run for extracted honey. Such hives were also used in securing comb-honey in sections. But why do we hear no more of the 'Long-idea?' It seems to have been dropped, just as was the Diamond ('Anglo-Cyprian') hive, without any one's telling us why it should not be kept in use, yet at one time the journals were full of the subject of long, single-story hives, and many believed that the *ne plus ultra* had been reached. I believe, however, that the above statement of some of the advantages of tiering-up will suffice to explain why such hives have so generally gone out of fashion.

The Diamond hive (I shall hereafter use this name only, for the thing can have but one correct name, and was long ago christened) is subject to the same objections as a hive for *comb*-honey, that it is for extracted honey, *i.e. the receptacles for surplus honey are not in the best relative position to the brood-nest.* Moreover, the most valuable corner — the upper one — for surplus honey is unoccupied. This might be remedied. But again, when we wish to get at the brood-nest, two lifts of sections must be made instead of one lift, as is the case in our ordinary hives. Or, the frames would have to be drawn out at an angle of 45°, which would be inconvenient. Or, again (and what would be a thousand times worse), we should have to go back to the clumsy, ridiculous hives of the Germans—use a *Wabenbock* and comb-tongs, and take out *nine* frames in order to reach the tenth! English and American bee-keepers have too much practical sense for that, surely.

Mr. Blow claims (page 3, *B. B. J.* for May) that 'on this form of hive a larger number of sections can be placed than on any other, and that the bees will enter them more readily.' My observation and experience indicate that he is decidedly mistaken in both of these statements. The 'Bay State Hive' invented and patented many years ago (about 1867, if I remember correctly) by Mr. Henry Alley, of Wenham, Massachusetts, gives the four sides, and in addition the *top* of the hive for section-boxes. The top-boxes were in the *best* position, while the bees entered those at the upper corners of the frames as readily, or nearly so, as they can be induced to enter the sections of a Diamond hive, and they sometimes entered the lower sections. The whole arrangement of the Bay State Hive was preferable for surplus honey, I believe, to the Diamond hive; yet, along with the Diamond hive, the Bay State has gone nearly into oblivion, in fact I do not believe the latter ever got so generally introduced as the former; and now I hardly believe a Bay State hive can be found in use in the apiary of any man in the United States who raises bees extensively, unless, possibly, in that of Mr. Alley himself; but this, even, I doubt. As early as 1874 I transferred the bees from four of them, to which I had given a fair trial, into Langstroth hives. As the frames were Langstroth size on end, I simply cut off the projections of the top-bars, nailed long top-bars on the former sides, and set the frames into Langstroth hives, casting aside the great, clumsy Bay States.

Thus it is seen that the two hives which proposed to do what is claimed for the 'Anglo-Cyprian' hive—one of them being in reality the same thing—failed, after some years of trial, to find general favour.

I propose now to say just a word about the causes which Mr. Blow states led him to bring forward this hive. First of all, I wish to say that 'the defects in wintering qualities of the ordinary bar-frame hives' are too readily admitted: are, in fact, made 'to cover a multitude of sins' in bee-keeping, that is, to cover a deal of bungling, unskilful bee-keeping—that sort of bee-keeping which the expression *tinkering* with bees might be taken to cover. But the mischief does not stop with these, but many professional bee-keepers lose their bees, or nearly all of them, every winter, simply 'because the modern moveable-comb hives are used'—at least, that is the verdict popularly attached to these losses. I claim, however, that *if* these losses have occurred in moveable-comb bee-hives on account of the fact that the bees have not brought their combs into close contact with the tops and sides of the hive, *such losses can be easily avoided* without resorting to the Diamond style of hive, or, in other words, the *dis*advantages of moveable-comb hives as winter repositories for bees *can be entirely corrected:* moreover, I am fully convinced that there are possibilities in the wintering of bees that have never been equalled by straw skeps, cork hives, *or even clay-cylinders!* But to discuss that subject I should have to go over the whole ground of wintering, and so intimately is good wintering connected with general management during the working season that much of that would have to be alluded to, and space for several articles would be needed instead of a mere paragraph at the end of a hastily prepared article like this. Suffice it to say, that I fully believe that altogether undue importance is attributed in the wintering of bees to the manner in which combs are attached to the hive, hence I think the particular point which forms the whole basis of Mr. Blow's reason for presenting this hive is one worthy only of minor consideration—in fact, that it will not matter *greatly* whether it is considered at all if other and more important demands are complied with.

But what I consider the joke of it all is, that Mr. Blow should say (page 3, *B. B. J.* for May): 'In the clay cylinders in use as hives in the island of Cyprus, we find the bees build their combs parallel to the ends of the cylinders, and attach them half way down; and here again we see that the bees winter in practically a sealed chamber.' This, then, is what led to the 'Anglo-Cyprian' hive! Well, it's too bad to destroy it all, but I shall have to tell the truth and say that it is not often one finds the combs of the hives in Cyprus built parallel to the ends, but they are generally built every which way—more often, even if regular, running back at an angle of 45°, though they are likewise seen running from front to rear of the long clay cylinder! The hives used by the Carniolan bee-keepers are shaped practically like the hives of Cyprus, being long, low boxes; and though I have seen and opened hundreds of these also, I have yet to see one such hive with combs parallel to the entrance, although I do not doubt but that they exist. Mr. Blow further says: 'In examining the bees in Cyprus I was extremely struck with the immense strength of the stocks in the winter, and came to the conclusion that it was owing in a great measure to this particular arrangement of the combs.' I have been likewise 'extremely struck' with the immense strength of the stocks of bees not only in Cyprus, but also in Syria and Palestine. But my conclusions are very different from those of Mr. Blow. I think it owing to a variety of causes, prominent among which are: the mildness of the climate, which enables them to gather pollen and some honey during the winter; the material used in the construction of bee-hives—porous earthenware; the fact that the hives are piled in heaps with the interstices filled with very dry earth; but, above all, comes the inborn prolificness of these Eastern races. These circumstances, together with their prolificness, cause bees in these Eastern lands to breed *nearly all winter*, hence they are always strong in numbers, or at least when their great enemies—the hornets, bee-eaters, lizards, and moth-larvæ—are not present in overpowering numbers. It is the struggles against these enemies—above all, against the myriads of fierce hornets, and next to them the moths, with the battle against the high winds of the eastern Mediterranean, and the struggle to gain a livelihood from parched fields—that have, in the course of thousands of years, developed and fixed the valuable qualities of these bees—made them more hardy, stronger, more courageous, and more prolific than our common bees. It is this very trait of *breeding in the winter* which Cyprian, in connexion with Syrian and Palestine bees, possess, which, in my opinion, properly taken advantage of, will, even in northern climates, be an important factor in the wintering of the future.—FRANK BENTON, *Munich, Germany, June 22nd*, 1883.

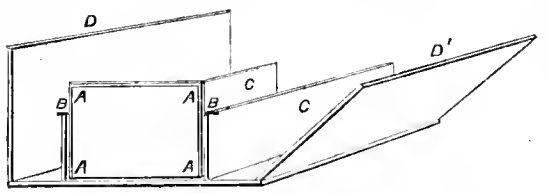
THE ANGLO-CYPRIAN HIVE.

I was so struck with the idea of Mr. Blow's hive, that I at once set to work to devise a modification of it—not desiring to copy the idea too servilely—and intended writing to next issue of the *Journal*, acknowledging my intention of working a hive on the same principle. However, I failed to write, in consequence of other occupation. Judge my surprise, when I read, in your issue of May 15th, such a criticism of the hive coming from Mr. Cowan; and notwithstanding such criticism, my humble opinion is that Mr. Blow will earn the thanks of the bee-keeping fraternity by so freely publishing the notion. Further surprise was in store for me. I refer to Mr. Raitt's communication, with sketch, illustrated in the issue of June 1st; for here is represented almost the identical thing I have made.

My hive has the entrances along the side instead of on end, a continuation of the one side of the trough below its bottom forms an alighting-board. I also think my distance-keeping arrangement of the frames will differ from Mr. Blow's. Working on this has brought out another notion, which has doubtless occurred to other inventive bee-keepers, and the rough sketch herewith will

better illustrate what I mean. If square frames can be practically worked on the angle, as in Blow's hive, why not use standard frames, with bearings or shoulders about one-third of their depth from the top-bar, *vide* illustration? To prove its practicability I purpose putting one or two hives in use at once.

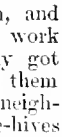
The plan would appear to be favourable to the working of sections at the sides near the top if sufficient space is allowed for the purpose between the frame-ends and outer case of the hive. A A A A is the frame in position, B B the shoulders resting on the shallow inner sides of hive (C C). D is one side of the outer case, which should



be hinged at the bottom so as to open outwards, as at D'. This arrangement would admit of the frames being got at without difficulty, and facilitate the arrangement of packing for winter. It remains to be seen whether the shoulders should be fixed about one-third of the frame's depth from the top, or lower down. The position indicated in the above sketch appears to be most convenient. The effect of a quilt and packing over the tops and exposed ends of these frames would be the same as that in the frames suspended on the angles, *i. e.* the heat of each seam of bees would be retained in the upper portion of the brood-nest.—J. R. W. Hole, *Turrington, Ledbury.*

THE ANGLO-CYPRIAN HIVE IN PRACTICE.

I inclose engraving of Price and Conklin's hives.* I made a pair in 1874, as shown in Mr. Raitt's sketch. These hives in theory appear to be all that can be desired, but in practice a complete failure. The frames have a trick of toppling over in manipulation, and all the dodging in creation will not make them work satisfactorily; dirt and cuttings are not so easily got rid of as it appears. I thought I had broken them up long ago, but on asking a gentleman in this neighbourhood if he remembered the Diamond frame-hives I had some years ago, he said, 'I do very well, for I have one in my possession. I will send a photo of same, if of any use.' I had a set of frames with a bar through the middle, thus— The bees in building their combs in naturally seem to work from each top-bar, leaving a seam down the centre.—Nantwich.



[With the preceding letters, the discussion on the parentage and shape of the Anglo-Cyprian hive must close. We hope that the future results of the hive may be in proportion to the ventilation it has received in our pages. There can be no doubt of the identity in form and principle of the American Diamond and the Anglo-Cyprian hives; but we would not infer therefrom that Mr. Raitt evolved the idea from any other source than from his own inventive faculty. It is frequently to be noted that the same discovery is made, sometimes simultaneously, by two independent minds; and we account for this coincidence on Touchstone's theory, that 'the heathen philosopher, when he had a desire to eat a grape, would open his lips when he put it into his mouth: meaning thereby, that grapes were made to eat and lips to open;' and a Christian philosopher who would do the same is as little a copyist as a heathen.]

* The engraving forwarded represents the hive without the legs, as mentioned by Mr. Hooker. It is very similar in appearance to the V hive given on p. 159 of vol. i. of *B. B. J.*

REARING AND INTRODUCING QUEENS.

In your Reply to Query No. 539 in *Journal*, vol. x. p. 233, you extract a paragraph out of Mr. Cowan's book, the second part (beginning at the eighth line from bottom) of which plan I have twice tried, and in both cases fertile workers appeared, which destroyed all the queen-cells about two days off hatching out.

A better plan would be, on the second day after taking out *all* the queen-cells, to give them a fertile queen at the flight-hole, and raise cells in the hive from whence she was extracted; she need not be caged: most bee-keepers will marvel at this, but my observations and experiments have enabled me to lay down the law, that if a hive has no queen, nor means of raising one, they will accept a fertile queen at the flight-hole; and this law holds good with bees of any age, or even if a fertile worker is in the hive, unless it has begun to lay, in which case any queen-cells started must be cut out and the queen caged, when she will be received.

Huber found the bees would accept an alien queen at the flight-hole twenty-four hours after the other was removed, and I think the great cause of loss of queens is keeping them too long caged up—forty-eight hours or more; they seem to regard her then in the same light as the fox did the grapes, and commence to rear another; when they do that it is very risky to set her at liberty for seven or eight days, and then every queen-cell ought to be carefully cut out, in which case my rule holds good. —John Hewitt, *Sheffield.*

DIRECT INTRODUCTION.

It is but right that failures, as well as successful results, should be recorded; but it would be better if those trying the system would take the trouble to distinguish between uniting colonies and the simple act of introducing a queen.

Your correspondent 'H. A. S.' is evidently labouring under a great mistake when he states, on p. 68, that he has tried my system of Direct Introduction, and failed. He not only acknowledges that his queen was not disturbed, but, by his own showing, he did not introduce a queen at all. He simply endeavoured to *strengthen* his small and *demoralised* lot by *adding* a frame of brood and bees. For years bee-keepers have been in the habit of building up stocks by giving frames of brood and bees; and in my pamphlet I have certainly mentioned that as the best way of equalising colonies.

Your correspondent failed in attempting to *unite* his bees because he ignored the fact that his *very* weak lot was so utterly disorganised that it was a foregone conclusion that fighting would result if he neglected to sprinkle the bees with thin syrup. How he could conceive the idea that he was attempting to *introduce* a queen, and failed, remains a mystery to—Samuel Simmins, *Rottingdean, Brighton.*

INTRODUCTION OF QUEENS.

There has lately been some correspondence in your *Journal* in reference to the introduction of Ligurian queens in hives. May I be permitted to give my experience? I admit that at most times it is a delicate and doubtful experiment, depending upon the disposition of the bees at the time of introducing. The new method, as advocated by Mr. Simmins, as far as theory goes, appears reasonable, simple, and complete, no doubt in the hands of an expert would be successful; I was certainly unfortunate in endeavouring to introduce a Ligurian queen to a queenless Ligurian hive on this method, which had been queenless some two months. The bees in the hive immediately commenced a murderous onslaught on the queen and workers introduced, and in a very short time killed and carried out the whole lot. I obtained a second (splendid) queen from Messrs.

Neighbour & Sons, and in introducing her I adopted the plan as directed by them in the instructions given with the queen, viz. caging her for four days. The result in this instance was a complete success.

I should like to point out that at times the disposition of bees is more friendly and quiet; this being so, direct introduction would doubtless be successful, but in the case of introducing without caging, the risk is very great, and I could plainly see that had I not caged the queen in my second attempt she would not have been allowed to survive many minutes; the bees were furious in endeavouring to get to her in the cage. Therefore, unless the operation is in the hands of an experienced bee-keeper, I would persuade novices to cage their queens upon the well-tried and approved plan.—W. H. Baigent, *The Priory, St. Denys', Southampton.*

SECTIONS ON STRAW SKEPS.

I have seen several plans of getting sections filled by straw skeps, but none appear to me so simple as a crate of five 2 lb.-sections, 5¼ by 6¼, placed over the central hole and covered by a cheese-box with a conical roof of common felt to throw off the rain. I have found this kind of cover very efficient, and the cost will not exceed a few pence. I have also found that the bees work readily in this kind of super, especially if no separators are used until the combs are pretty well advanced.—E. D'O., *Bray, Ireland.*

BURROWING BEES.

Will you kindly tell me in your next issue what kind of bees the enclosed are? They have appeared in large numbers this spring in the garden of a gentleman of my acquaintance, and look so much like the hive-bees, when carrying pollen, that I at first thought they were so. They have burrowed under a lawn close to the house-door, entering at the edge of the walk. Some have made their home under the turf, while others have turned after going downwards, and burrowed under the asphalte walk, where we found cells with pollen in, at a depth of from twelve to fourteen inches. I enclose several cells with the pollen rolled into round pellets just as we found them.—William Coxon, *Nottingham.*

[We are obliged to our correspondent for the trouble he has taken in forwarding the cells of the burrowing-bee. They are very perfect specimens of 'insect architecture.' They are composed of sand-grains, glutinated together by means of some viscid saliva; thimble-like, rough on the outside, but perfectly smooth in the interior; with pellets of mingled pollen and honey about the size of a red currant, the instinct of the bee teaching it the amount of nurture required for the subsistence of the young which shall proceed from the egg to be deposited. The species is the *Andrena Trimmerana*, it belongs to the family of the *Andrenidæ*, of which there are upwards of eighty native species in Great Britain.]

WHY DO NATURAL SWARMS CLUSTER?

I note with interest Mr. Geo. Yeomans' letter as to scouts being sent out in the last number of the *Bee Journal*, and should like to ask through its medium why bees when swarming naturally cluster at all, why do they not go straight to the hollow tree or cottage roof? I believe a swarm has been known to hang for three days, and have myself known one fifty hours in a tall tree, and should like to know what is thought by learned apiarians on the subject.—Thos. Ed. Lingwood, *Creeting, Suffolk.*

[We would desire to refer our correspondent to a paper by Mr. Cheshire in Vol. II. of the *B. B. J.*, p. 76, on the 'Philosophy of Hive Shape,' in which he discusses the *rationale* of bees clustering.]

STRENGTHENING A WEAK STOCK.

In the *Journal* of 15th May I find it recommends 'give two or three frames of brood covered with bees from other hives, caging the queen and removing the hive to a distance of two miles.' This is a very troublesome process, to say nothing of the expense. I strengthened two weak stocks as follows, and find them doing well. I first fumigated both the strong and weak with smoke, gave the latter a comb or two of bees and brood from the former, and placed the weak one on the stand of the strong one. The bees who were out gathering entered freely. Next day I found the weaker one stronger in bees than the strong one. I then moved them to the original stands (which were within a few feet of one another). There was no fighting nor encasing of queens; now both hives are in good condition. I am under the impression that, by smoking and sprinkling with scented syrup, this plan would be successful when hives are at several yards distant from each other, and other hives intervening.—Duncan Stuart, *Dunoon, Argyllshire.*

QUEEN-WASPS.

Outside my study window, facing south-east, grows a cotoneaster, and this cotoneaster has seasonably been in bloom. Meanwhile, during the past three or four weeks, it has been visited daily by great numbers of queen-wasps; I have counted as many as fourteen at a time visiting the plant, and settling for a few seconds on the wood, crawling amongst the shoots. The royal personages did not seem to me to settle on the small flower, as bees would. Sometimes they would come into the room, and I have succeeded in destroying as many as three in the course of the day. Can you give an explanation of the predilection of the queen-wasp for the cotoneaster; and if not can any of your readers?—Edward Cadogan, *Rector of Wicken, Stony Stratford, June* 18.

[We have no doubt that the queen-wasps on the cotoneaster were in quest of their daily food; the nature of the food thence obtained we are unable to state. A bad name has been given to wasps, but they do immense benefit by capturing and eating flies and other annoying insects. Professor Cook says that he has seen wasps carrying off 'currant worms' with a celerity that was most refreshing.]

WORKER-BEES IN DRONE-CELLS.

Have any of your readers ever seen worker-bees hatched from drone-cells? While examining a black stock on 14th June and cutting out drone-brood, I observed several workers from drone-cells, and to be sure I examined minutely other drone-cells, and in several there were mature and living worker-bees, though in a few there were dead ones. I have plenty of times found drones in worker-cells, but never the other way. Bees doing well in this neighbourhood up till now (15th June).—Enoch Woodham, *Abbotsley, St. Neot's, Hunts.*

[The above is a strange, if not an unique, experience. Some singular aberrations are on record. In vol. ix. were given two cases of worker-bees being found in queen-cells. In the June number of *Gleanings* we read, 'In August 1882, a queenless colony was given a frame of brood from which to rear a queen. There was no drone-brood on the frame, yet they capped a part of it as worker and the rest as drone. At the time of hatching, a part of those cells which were capped as drone-comb hatched out worker progeny, and the remainder the opposite.']

WHO IS A COTTAGER?

In addition to the 'points' I suggested in last *Journal* as necessary to constitute a 'cottager,' I entirely overlooked the important one mentioned in the same issue by "A (female) Member of a County Association,' the having

only 'half-a-dozen stocks,' so to the five points I wrote of I now add a sixth: 'Not to have more than six stocks.' Let apiarians and others of experience say what they think of my proposals. For my own part, the more I consider the matter the more am I persuaded that a 'cottager' can only be defined on the lines indicated, by being possessed of so many qualifications or points.

Doubtless some of the points I mentioned would not at all suit some districts, for instance, the third. Under 30*s.* weekly wages would be far too high for the counties of Aberdeen, Banff, or Moray, where labourers' weekly pay would be from 15*s.* to 20*s.*; and one with 30*s.* a-week, or nearly 80*l.* a-year, would by no means be considered to be moving in the humbler walks of life, trudged by what are usually called cottagers. So modifications might be made to suit different districts or provinces.—JAS. SHEARER, *Cairnie, Aberdeenshire.*

A CAUTION AGAINST THE USE OF CARDBOARD FOR SEPARATORS.

I very foolishly put some cardboard into two of my supers to divide the sections, and I enclose a piece I have just taken out. There is no honey in the supers, and evidently the bees have spent all their time in trying to remove the cardboard, and this is most vexing.—G. H. PAINE, *Uplands, Harrow-on-the-Hill.*

A VISIT TO THE APICULTURAL EXHIBITION AT SOUTH KENSINGTON MUSEUM.

I have read somewhere in the *British Bee Journal* that a certain space has been allotted in the South Kensington Museum for apicultural purposes. After having visited the 'Fisheries,' this was my next attraction. I therefore turned into the Museum and inquired of one of the servants where this space was to be found. He said there was no such space; no exhibit of bee appliances at all, only two or three hives outside. Well, as I was in the Museum, I thought I would have a look round, and, lo! in an out-of-the-way corner I found the wished-for place. Space in the South Kensington Museum is doubtless very valuable, and I think this out-of-the-way corner ought to be prized by professional bee-keepers, but judge of my disgust at the exhibits: a 'Neighbour's Hive,' fit for my Lady's drawing-room, but could never be intended for out-door work; a Stewarton hive, and one or two more frame-hives. No fault can be found with Abbott's Irish Hive, but could not Messrs. Abbott Bros. show something more in the way of manufacture? Mr. Cowan's 'Amateur Honey Extractor' is very well: he would have done better to have shown the 'Rapid Extractor.' 'Blow's Feeder' was exhibited under a glass case; although I had heard a deal about 'Blow's Feeder,' and would fain have inspected it, my sight could not pierce through that mysterious tin case. A few other things were securely locked up in the above-mentioned glass case—several specimens of bees, but quite impossible to distinguish one from another, except by the labels. I think some of the suggestions contained in the article headed 'Reading-Room,' page 31, May 15th, *B. B. J.* are very valuable. As the writer says, 'The space in the South Kensington Museum is hardly of any use to members,' whereas a central depôt, where visitors could see and examine the latest improvements would be highly appreciative. Of course a fee would be charged. —ICARDUS.

BLAYNEY SECTION FRAME.

I would inform Mr. Hamilton that I exhibited frames (similar to the one illustrated in *Journal* for June 15th) at several Shows last season, having adopted this system for some time, and should consider it entitled to be called the 'Herefordshire' section frame.—J. R. W. HOLE, *Tarrington, Ledbury.*

Echoes from the Hives.

Cambridgeshire.—The weather during the last fortnight has been all that could be desired by bee-keepers, and already large quantities of honey have been obtained. In two cases lately, one at Emmanuel College, Cambridge, and the other in the apiary of J. Dunn, Esq., Great Shelford, swarms have taken possession of empty hives, in the former case the swarm came from another apiary; in the latter it issued from one of the adjoining stocks, and almost immediately occupied the hive already prepared for it.—J. E. L. W., *Hon. Sec.*

North Hants.—This month has, on the whole, been favourable in this locality for bees. The incoming of honey from sainfoin has been good, especially in those stocks which had become thoroughly strong ones,—these are the hives where good crates of supers have been filled, and to keep others breeding it has been necessary to use the extractor freely to keep the brood-nest clear for breeding purposes; for in consequence of the honey-glut from the 14th to the 20th, many stocks, even weak ones, had filled every available cell. Since the cutting of the sainfoin but little honey has come in, but now that the white clover is showing up among the sainfoin fields, there is a good prospect of a few more honey-gathering days before the lime-trees open their flowers. In this locality swarming has been rather the exception, and many cottagers with straw skeps have to lament that their bees have been hanging idle, having no room either to breed nor store more honey, so that practically their honey harvest is done, while the advanced bee-keeper has gathered one good harvest from his stocks and is fairly in the prospect of a second, after which his bees may then gather sufficient from later blooms for a good winter supply.—W. H.

Somerton, Somerset.—Swarming began in earnest early in May, but the cold weather about the middle of that month checked it to a considerable extent. Stocks and swarms are now generally in good condition; sections and supers are being filled rapidly. This week we have had cold rains, but there seems plenty of honey about. The white clover is now coming out.—J. I. S.

Sussex.—For several days after the 2nd of June we were visited with winds from the north-east, approaching almost a gale. It was not really cold, but too rough for the bees to do much good. On the whole, however, June has been favourable for honey-gathering, though occasional dull days have rather retarded the completion of sections. We have not once had enough rain to moisten the ground, though all around us on several occasions it has appeared to rain in torrents. We are therefore suffering much from the want of rain, and a good shower would be very beneficial to the second growth of red clover, and the wild thyme, which will soon be out. My own crops of mustard, &c., have been of great service, principally in giving the bees large stores of pollen close at hand, enabling me to build them up rapidly. My autumn crops I hope will pay better than the early sowings; the former stimulating them to breed later in the season, as I have always found bees will not go any distance for food late in the year. These last 'home crops' will also give an immense amount of surplus pollen, which will be stored ready for use immediately after the turn of days. Nothing induces brood-rearing in early spring so much as good old natural pollen; but because of last year's dearth, I had this year to supply a quantity of meal, as my bees neither had nor obtained natural pollen until after the 1st of April. The results obtained were satisfactory, but an abundance of the real article would have been much more so.—S. S. *Rottingdean, Brighton.*

Edingthorpe, North Walsham, June 19th.—Drones appeared in my apiary on May 7th. My first swarm on

June 6th. On the 13th of this month I had a swarm of hybrid Ligurians which weighed 9 lbs. net. On the 14th I had a 6-lb. swarm. Another of about same size went away. I have sectional supers on twenty-one of my hives, and some nearly completed. The cold rain and wind have 'backed' them very much.—J. Lawson Sisson.

Somersham, Hunts, June 21st.—I am sorry I cannot send as glowing reports as have been received from some districts. For the last fortnight the wind has been more or less in the north and north-west; yesterday morning it was in the east, subsequently south-east and south, but this morning it is in the north-east. Rain has fallen moderately, but sufficient to keep the bees at home every day since the 13th. Very little honey has been stored in this neighbourhood. I hardly expect a tithe of the quantity I had last year. Unless the weather be fine when the few limes we have are in bloom, I am afraid this will, as far as our neighbourhood is concerned, be a bad season. A great bee-keeper of this county, who called upon me yesterday to inspect my apiary, gave it as his opinion that honey-producing does not pay. Having kept bees many years near Huntingdon, he is far better able to judge than I, who have only been here three and a half years; but my opinion is that with favourable weather and bees strong in the spring a good harvest may be secured from fruit-blossom, and a fair quantity afterwards.—C. N. W.

North Wilts, June 21st.—During the month of May, the rainfall here was 1·83, and we had thirteen rainy days,—that is, days on which one hundredth of an inch of rain, or upwards, fell. The earlier part of the month was cold and generally unfavourable for the bees; but a change took place on the 12th, and between that date and the 25th very little rain fell. I heard of a few May swarms in this neighbourhood, but for the most part swarming was delayed until the present month. I saw drones (or rather a drone) out from one of my hives, for the first time this year, on 17th May. On the same day I put a crate of sections, with partly worked-out combs, on another hive which was very crowded with bees, and on the 27th I added another half-dozen sections to the crate. On the 5th of this month, finding the outside sections being filled with honey, I examined the crate, but there was not a single section sealed over and fit to take,—at which I was, I must confess, disappointed, as I saw several queen-cells in course of construction through the glass window at the back of the hive. On the 12th, the hive swarmed, and I returned the queen and part of the bees, giving the rest of the swarm to a Ligurian queen. I examined the super, but only found four sections fit to take, and these had a few cells unsealed. During the present month we have already had thirteen rainy days, with several thunderstorms, so that it has been necessary slightly to feed swarms. I put a super on a skep, which was crowded with bees, on the 2nd of this month, and did all I could to persuade the bees to work in it, even to the extent of putting sections in it fully worked out and containing some honey; but my overtures were declined, and on the 14th a very fine swarm came out, which gave me some trouble to hive as they settled in a plum-tree which was trained against a wall. I could not shake or push them off, so I drove them slowly up into a skep with smoke. About a week ago I examined a hive for a neighbour of mine, and put another frame into the middle of it. I think I never saw a hive with so much sealed brood in it, but there was no honey—at least none sealed—and but small quantities of unsealed honey that a very few days of bad weather would have brought about starvation, so I recommended feeding if we had three days of continuous wet weather.—H. B.

Essex, Chelmsford, June 23.—So far we have had a good season for bees. A fair quantity of section-honey has been taken, although in this neighbourhood we have been overdone with swarms and casts; in one case as many as ten have issued from four stocks, notwithstanding they were well supered. The first part of the month was fine and warm; latterly we have had showers with occasional thunderstorms. The thermometer is low.—G. H. A.

Warwickshire, Leamington, June 23rd.—At the end of May I was at Rhyl, and saw two good stocks of English bees in Neighbour's bar-frame hive, examined one, and found it full of brood, and the end-frames were nearly all sealed up with sycamore honey. When I got home, after a month's absence, I found that the bees had not gathered any honey worth speaking about, as we have no hollies, or sycamores, or anything of the kind. Just for a few days, about 14th, 15th, 16th, honey came in pretty freely; since then it has been cold and showery, so that the prospect is not good, although I have a lot of stocks full and up in supers. If weather comes fine and warm, we have over forty acres of beans in full bloom, and white clover is just beginning to make a show. Having been ill, I do not feel inclined at present to make any remarks respecting the discussion on the '*Bonâ fide* Cottager.'—John Walton.

North Leicestershire, June 25.—Maximum temperature has varied since the 9th inst. from 74° to 54°, but the bees have only lost one day's work, viz. 15th inst., when 1·39 inch of rain fell, consequently they have made rapid progress, and some hives show a fair amount of sealed comb. Swarming (natural) has been very much in abeyance: of twenty-six hives in this village (Waltham) only one has swarmed, and that a skep. Rain has fallen on seven days during the month, and on eleven days only during the last six weeks. Limnanthes and beans are now furnishing abundance of honey. Clover is just beginning to bloom. First swarm June 23rd.—E. B.

Wilts, Hungerford, June 23.—From most parts of the county reports are very satisfactory, as far as well-managed apiaries are concerned, and supers are filling rapidly, the stock-hives being full of brood and honey, and swarming has been checked with difficulty. Among cottagers, two or three swarms have already left many hives, and many of these have been lost. (Why will not cottagers who have been shown how to do it, take means to prevent this?) In this immediate neighbourhood, 800 feet above the sea, till three weeks ago, bees were only living 'from hand to mouth'—no fruit trees about, hardly any bloom on sycamores (which by this time last year had filled our supers), and nothing else to be had till the sainfoin came out ten days ago. As yet there have been few warm nights, and little honey seems to have been secreted till lately. The first drones were seen here May 29, but even now very few have shown themselves. Last week matters looked up; now the weather for a week has been dull and rainy, with cold nights.—W. E. Burkitt.

Creeting, Suffolk, June 25.—Skeps still increasing in weight, despite much dull and showery weather the last ten days. If things go on as at present we shall get much honey this year; the last four days have been rather warmer and better, though dull.—T. E. L.

Bray, Ireland.—The weather here from the middle of May to the 10th June was very fine, and I have heard of considerable quantity of sectional honey being taken before that time. But since then we have had rain almost every day. The white clover is now almost in full flower here, and a fine fortnight before 20th July will make the year a good one, even though we might have bad weather when the heather is in flower.—E. D'O.

Bees and Bailiffs.—A remarkable case of assault on County Court bailiffs was brought before the magistrates at Northampton yesterday. It transpired that on the bailiffs entering a house at Woodford to levy execution, the occupant, named Samuel Gunns, threw a hive of bees at them, and immediately locked the officers in a room with the infuriated insects. The prisoner was sentenced to twenty-eight days' hard labour.—*Standard.*

Queries and Replies.

Query No. 624.—*Removing the Quilt.*—I should be very glad to know if there is any means of taking off a quilt quietly, when the bees have glued it down on to the frames. I find that if a hive has not been opened for a week or so, the quilt gets stuck, and has to be peeled off like sticking-plaister; thereupon the bees rush in great numbers on to the top bars, and before anything can be done they have to be smoked back. This considerably interferes with the 'quick, silent, and quiet examination, with scarcely any disturbance,' to which you refer in the last number of the *British Bee Journal.*—Chas. W. Graham, *Richmond, Surrey.*

Reply to Query No. 624.—Having blown into the hive a few puffs of smoke, the quilt should be peeled off from the extreme corner. If the smoker be at once used, and, if necessary, continue to be applied till the quilt be taken off, the bees will beat a retreat before they have the opportunity of resenting the invasion of their domicile. The irascibility of bees is often to be traced to improper treatment on the part of the operator, such as jarring the combs or quick motions. It is not advisable to be too profuse in the use of the smoker.

Query No. 625.—*Clover and Heather.*—Will you kindly let me know in your next issue, is the clover enclosed the white clover that bees are fond of? Also, would my bees have much benefit from red heather a mile and a quarter distant straight line, or would it be better to remove them there?—John Berry, *Llanwst.*

Reply to Query No. 625.—The sample enclosed is one of the best field-crops for honey. White clover is found in nearly every meadow, and is grown for hay as a mixture with yellow trefoil and rye-grass, making a capital succession of bloom. The trefoil comes out from the middle of May, to be followed in about two weeks by the white clover (sometimes alsike is used instead). The next growth, after being mown, is nearly all white clover, blooming from the beginning of August, and lasting two or three weeks, or more when left for seed, as is often the case. For improving the white clover in meadows, or on lawns, nothing equals road-grit or scrapings for inducing a dense growth. Heather is invaluable to bees in autumn, but unless the weather is very settled they would not at that time of the year go the distance mentioned. If you take them into the heath district they will probably have miles of pasturage all round them, whereas your letter implies that you are a mile and a quarter from the margin of the heather.

Query No. 626.—*Red Clover.*—I have a good strong stock of bees that I want to Ligurianise. When would be the best time, and which is the most simple way? We have a great deal of red clover grown in this neighbourhood, and I have been told that the black bees cannot get honey from it, but that the Ligurians can. Is that correct? and if so, would it be advisable to Ligurianise all our stocks?—Amateur, *Bucks.*

Reply to Query No. 626.—Black bees will work on red clover, but can do but little good with it. Ligurians and hybrids work their tongue right into the flower, while the blacks work round the base where some other insect has first pierced a hole. Where there is nothing but red clover in bloom blacks cease to store honey, while those bees of the Ligurian race continue to accumulate more, the honey being amber-coloured. It is the second growth of clover that they work upon. The first crop comes in bloom when there are many other things that the bees prefer, and this is probably the reason why they are so seldom seen on it. Besides, being of a more luxuriant growth than the autumn crop, the flower may be too deep even for the tongue of the bright-banded favourites. If you have no other good crop at the time of the late red clover, it would decidedly pay to Ligurianise your apiary. For mode of Ligurianizing, see *Leaflets.*

Query No. 627.—1. *Excluder Zinc.*—My Combination hive has at present nine frames; eight in the brood-nest and one behind the excluder-zinc, behind which I also intend placing a couple of frames filled with sections. Which excluder-zinc would you recommend me to use, the round-holed or the long-holed? 2. *Cheap Bar-frame Hives.*—A labourer near me wants to start a frame-hive, but objects to giving more than 5*s.* for it. Could you recommend me a complete hive at that price? 3. *Finding the Queen.*—As finding the queen is by no means an easy matter, do you think you would be likely to find her by placing a frame (with sheet of comb-foundation inserted) in centre of brood-nest, and examining it (the frame) about two or three days afterwards? 4. *Specific Gravity of Honey.*—What is the specific gravity of well-ripened honey? 5. *Extracting Honey.*—How often ought you to extract a frame, so as to insure getting good honey?—M. C. B. K. A.

Reply to Query No. 627.—1. The best queen-excluder is that with the oblong or rectangular hole, since the bees use it more freely than the round-hole zinc; but a small queen will pass through either. 2. We believe the Messrs. Abbott used to supply a cheap bar-frame hive at about the price you name—one that took a prize at a Crystal Palace Show some years ago—but we are not aware whether they still supply it. 3. Not more easily than upon any other frame. 4. The specific gravity of pure refined honey is 1·261. 5. Extract as soon as the honey-cells are sealed, or nearly so.

Query No. 628.—*Examination recommended.*—I have a stock, the queen of which died about the beginning of March, and I gave it a frame of brood and eggs about the end of April (expecting them to rear a queen), which they did nothing with, but hatched out the brood. Then I gave them a second, with, as I thought, like result; but on giving them a third, I discovered a queen just about the size of an ordinary worker, but no appearance of eggs. Had they raised her on the second frame, and will she be unfertilised? Should I destroy her and try again? The stock is strong, covering six bars, and there are plenty of drones about the other hives.—J. A., *Bottom Lintrathen.*

Reply to Query No. 628.—Since you do not appear to have kept the hive under observation—otherwise queen-cells would not have escaped your notice—the probability is that the young queen which you saw is fertile, and that you failed to discover the eggs. On any other supposition we cannot understand how a hive losing its queen early in March should have bees covering six frames in the middle of June. We advise a careful examination, when we think you will find both eggs and brood. If not, you cannot do better than introduce a fertile queen caged on a frame of brood taken from another hive, having previously removed the unfertile queen.

Query No. 629.—1. *Hiring a Swarm.*—Never having kept bees before, I bought a swarm and put them in a bar-frame hive on the 5th of June. They were sent a good distance in swarm-box. Swarm weighed three pounds. I hived them as follows:—placed hive on floor-board, tilted it up a little in front, spread a sheet on ground in front of hive, then gently shook bees out on cloth, guiding them in with a feather. Did I do right? 2. *When Sections should be given.*—How many frames ought I to allow the swarm? I have five in at present. The bees seem to be working well, and have filled four frames; the fifth I put in yesterday. I supered them with full sheets of foundation. I should like to know how many I must put before I begin to put sections in.—J. T. G.

Reply to Query No. 629.—1. You pursued the right plan in hiving your swarm. 2. By the time you read this, the weather having been favourable, ten sheets, at least, of foundation should have been fully

drawn out by the bees. Supposing the hive now to contain six frames well worked out, give at once four others, alternating them with frames of brood, and, weather proving fine, in about six days you may try them with a super; but unless you are in a good county, abounding with late forage, it is more than doubtful whether you will reap a harvest during the present season.

QUERY No. 630.—1. *Passage under Frame-ends.*—In *Modern Bee-keeping*, in fig. 5, page 20, there is a slip of zinc shown at *c* on which the ends of top bar of frame rest, the wood being cut down ¼ inch. Now, is there any way in which the bees could be prevented from going between the ends of the frames; and if so, would it not be desirable to do so? 2. *Dimensions of Section-boxes.*—In the description of the section-boxes, p. 45, it does not say if the dimensions $4\frac{1}{4} \times 4\frac{1}{4}$ is inside or outside measure. It also says, 'The top and bottom pieces are only $1\frac{3}{4}$ in. wide, in order to allow the bees to pass through the spaces left between the narrower bottoms when the boxes are placed side by side.' But what are the narrower tops for? Would it not be better that the bees should not be able to pass between them? 3. *Space between the Sides.*—I intend to make my hives double-sided of deal, nearly an inch thick, that is, the third of a thin inch deal less by sawing and planing. What would be the best width for the space between the sides, sufficient to give the benefit of the air-space, without making the hive unnecessarily large and clumsy? $1\frac{1}{4}$ or $1\frac{1}{2}$ in. would match the boards I have very well. 4. *Paper Felt.*—I have some of a very thick soft kind of paper, used for putting under carpets. Would it be a good plan to put one, two, or more thicknesses of this between the inner and outer frame, and not to leave any space at all? I think this ought to be as good as the empty air-space, if not better.—GEO. JAS. HEWSON.

REPLY TO QUERY No. 630.—1. The wood is cut away purposely ¼ of an inch below the strip of zinc to allow the bees a passage under the frame-ends to allow them to get away without being crushed when frames are put down on the runners. 2. The dimensions of sections is $4\frac{1}{4} \times 4\frac{1}{4}$ inches outside measurement. The tops are $1\frac{3}{4}$ inches wide, so as to allow bees to pass from one rack of sections into another one, should it be desired to place a second lot on the top of the first. 3. $1\frac{1}{2}$ inches space is ample between inner hive and outer casing; $1\frac{1}{4}$ would do. 4. Two or three thicknesses of paper felt would do very well instead of space, but be sure to keep wet out of it.

QUERY No. 631.—*Artificial Swarming.*—Will you be kind enough to tell me what is the matter with my bees? I made an artificial swarm on June 10th by taking the queen and one comb out of the stock-hive and placing the new hive in its place. The distance between them is six feet. The next day the old hive was all over spots of a light-coloured substance very much like pollen, so I examined the hive and found very few bees in it. They are not working at all now. *Treacle.*—Will you also say if treacle will do to feed them with instead of sugar?—R. S.

REPLY TO QUERY No. 631.—From the result we should judge that the stock-hive was not in a fit condition for swarming. Had it been, by this time (June 22) there should have been a large increase of population—perhaps 2000 young bees being hatched daily. Treacle, containing caramel, is not a desirable food for bees.

QUERY No. 632.—*Removing Bar-frame Hives.*—I shall feel much obliged if you will tell me in the next issue of the *British Bee Journal* the best way to move stocks of bees in bar-frames a distance of one hundred miles by train?—D. P. MEADOWS, *Eredon, Sleaford, Lincolnshire.*

REPLY TO QUERY No. 632.—Each comb should be securely tied in the frame, and the bottom supported by a strip of wood, thus fixing the frames rigidly in the hive. The whole should be covered with perforated zinc, instead of the quilt, raised one-fourth of an inch above the frames. The entrances should be similarly closed. There is great danger in removing hives with newly-made combs. The hives should be placed on coils of hay-band, that the effect of the motion of train or cart should be reduced as much as possible.

QUERY No. 633.—*Ripe and Unripe Honey.*—What is unripe honey, and how can it be made ripe?—I. J. GOODHART.

REPLY TO QUERY No. 633.—The nectar gathered from flowers cannot be called ripe honey till such time as the evaporating or ripening process is gone through, and the bees have capped it over. If extracted before this, as recommended by many bee-keepers, from the greater amount of honey so to be obtained, it should be ripened by some artificial means, or it is liable to ferment or sour. If there is but a small quantity of honey extracted, let it be kept in a warm place in a can, or in a tall vessel, as illustrated in Vol. IX., p. 26, then the ripened honey will sink to the bottom, and can be drawn off, and the watery portion floating at the top may be utilised as food for the bees. If a larger amount is extracted, a more elaborate method must be resorted to. We have reason to believe that some appliances for ripening honey will be exhibited at the coming show at Knightsbridge.

QUERY No. 634.—*Transferring after the Honey Harvest.*—Supposing a stock were transferred from a straw skep into another one (empty) after the honey harvest was over, would the bees be able to make comb and store if fed sufficient to winter?—F. H., *Mitcham, June 21st.*

REPLY TO QUERY No. 634.—If a stock be transferred in May, it frequently takes the whole season to establish itself, during which time the queen is in her best strength. At the end of the honey harvest the bees are worn out, and the queen has done her work, and quietude should reign in the hive. If fed stimulatively, the bees may answer to the call; if fed rapidly, drone-comb will be the result. But as the life of a bee depends on the amount of work performed, the bees will die off, and the succession of young ones being small, the outlook for the coming spring will not be bright. Add to your hive two or three colonies of condemned bees, use, if possible, foundation-comb to reduce their work, feed wisely, and the stock may do well.

QUERY No. 635.—*Danger to Brood in Extracting.*—Is there any danger in extracting honey from the upper portion of brood-frame of throwing out the brood or eggs, as the frame contains a quantity of honey, and I am afraid of the brood, &c.? The extractor is one of Abbott's pattern for one frame.—J. P. ALLEN.

REPLY TO QUERY No. 635.—Honey of ordinary consistence may generally be extracted from brood-frames without removing unsealed brood or eggs. Care must be exercised, as a slight deviation from the safe speed may bring out a number of larvæ. Under some conditions it is necessary to continue the centrifugal force for a considerable time, as nothing like the highest speed of the machine must be adopted. Abbott's machines claim special advantages for extracting from brood-combs, owing to the absence of a chilly draught in their interior.

QUERY No. 636.—1. *Fastening Foundation.*—Which is the best way to fasten in whole sheets of foundation-comb without danger of buckling? 2. *Flat-bottomed Foundation.*—Is Abbott's flat-bottomed foundation best for stocks? 3. *Sliding Bottoms.*—Is the sliding bottom the best for bar-frame hives, and are there any other kinds of bottom in use? 4. *Height of Skep from Ground.*—What height should a skep be from the ground? 5. *Vagueness in Query.*—I know of three instances in which hives have died this last winter in bar-frames, though they had lots of honey and no appearance of dysentery,

what is the cause? 6. *Glass in Outer Wall.*—Is glass in the sides of double hives an advantage?

Reply to Query No. 636.—1. We prefer to fasten foundation by means of a saw-cut running completely through the top bar, several screws or nails being driven through to further secure it. If no more sheets are put into a hive than the bees can completely cover, they will never warp or buckle. 2. Experience teaches us that the best foundation for bees' use is that which has the thickest and highest walls, combined with a sufficiently strong midrib to support the weight of the comb-building bees. The flat bottoms use less wax than any other shape, and the strain being direct they may be made much thinner without danger of breakage, consequently much larger side-wall may be made without extravagance, thus enabling the bees to build more quickly and to make a wider comb without secreting fresh wax. It is therefore in our opinion the best. 3. A sliding bottom is the most convenient, but a plain bottom, on which the hive stands, is generally used. With long hives there is hardly any disadvantage in a fixed floor-board. 4. We prefer hives from eight inches to a foot above grass, &c., but six to seven inches would be better if clean ashes or gravel are below the hives. 5. We cannot give a verdict on such scant evidence. Queenlessness is generally the cause of death in winter. 6. We presume you mean glass in the outer wall only. We find this causes the bees to commence work earlier in spring, &c., but opinions are divided as to whether this is an advantage or not.

Query No. 637.—1. *Feeder.*—Do you think that the following would act. It is a modification of Neighbour's and Simmins',—Neighbour's idea for fast feeding and Simmins' slow,—the bees to be allowed to go on to float for fast feeding, and to suck the syrup, aided by capillary force, through lamp-wick or something of that sort, and the top of passage closed except hole for wick, for slow? —2. *Caging.*—During a honey-glut, in what position of the hive would you cage the queen? How long do you think it requisite to keep gentle feeding? My bees are strong in brood but not in honey.—3. *Young Queen.*—How would you do with young queen raised by bees in stock, from which artificial swarm and old queen went three weeks since,—is she due to lay any eggs yet? She has not done so.—4. *Wax-moth in saw-cuts.*—Seeing that some of your subscribers were troubled with the same thing as myself, namely, the wax-moth getting into the saw-grove at top of frames, and thinking that we can hardly dispense with this useful idea now (of Abbott's I believe) in some form or other, I beg leave to make a suggestion. My idea is that we either follow Dzierzon's plan and dispense with low bar, or use both it and central one with grove in for foundation, and have top-bar solid. —F. Eccles, *Chevet Road, near Wakefield.*

Reply to Query No. 637.—1. Your idea for feeder may answer, but be careful that, if you use it in winter, your lamp-wick does not act as a syphon and drip food among the combs at such times as the bees cannot take it. 2. In centre of brood-nest. 3. She will very shortly lay now; no doubt she has, owing to weather or other causes, failed to meet a drone. 4. Either use no saw-cuts, fixing the foundation to the underside of top bar by pouring melted wax along each side, or fill up the cut on the upper side of bar with melted wax, so as to afford no harbour for them.

Query No. 638.—*Unfertilised Queens.*—I made two artificial swarms this spring (the first I have attempted), one black and one Ligurian, both successful in so far that they prospered in numbers, and three or four queen-cells were raised in each hive. But, although it is eighteen days now since they were hatched, and I found queens in both, there is not the slightest sign of breeding, no pollen coming in, and no sign of brood in the combs. It would appear, therefore, that the queens have not been fertilised, possibly because, having so few hives, very few drones, I presume, are about, though I find a fair number inside. Under these circumstances, how long ought I to go on? Ought not brood to have appeared long since, under ordinary circumstances? and ought I not now to purchase fertile queens?—S. L. B., *Ballycassidy.*

Reply to Query No. 638.—Various limits to the time when fertilisation of a queen is possible are fixed, from the eighth to the twentieth day or so from the time of her being hatched. A well-authenticated case is known of her being fertilised on the thirty-first day. Continue to watch for signs of the queens being fertile, look closely over the combs to see if eggs are being deposited; whether the bees give signs of losing heart, and the hives becoming a prey to robbers; whether there is much excitement and running about the front of the hives, &c. If you are obliged to come to the conclusion that the queens are unfertile, the mischief must be remedied without further delay. The unfertile queens must be exchanged for fertile; or the hives must be joined to others that have queens; or, removing the queens from the hives, give each a piece of comb containing eggs or young larvæ, if haply fertile queens may be raised eventually.

Query No. 639.—*Inducing Swarms to Cluster in a Selected Spot.*—My bees are working well in sections. I do not want them to swarm, but they may swarm off naturally. And I want to know the best way to make them settle and cluster when they are more disposed to fly away—my bees generally are when they swarm. There is a house less than a mile off in the roof of which bees have been working undisturbed for twenty years. I have lost a good many swarms by their flying straight there and into the hole in the roof at once, as if they had marked the place. I shall feel grateful for your advice.—A. S., *Newtown, Rostrevor.*

Reply to Query No. 639.—It is often the case that where one swarm has clustered others are apt to choose the same spot. It is desirable, in order to avoid losing swarms, to keep the swarming impulse in check. This may be done by giving surplus room, by making free use of the extractor, by cutting out queen-cells, clipping the queen's wings, &c. In order to induce swarms to cluster near home, some apiarians make use of a 'bee-bob,' and by placing this in some central part of the apiary when the bees are swarming the swarm is generally secured. This 'bee-bob' consists of a number of dead bees, strung together with a needle and thread, and wound into a ball about the size of an egg, leaving a few strands loose. A black woollen stocking, or an old black hat fastened to the branch of a tree, in sight of the hives, might achieve the desired purpose.

Query No. 640.—*Second Swarm.*—I received from the West Riding of Yorkshire, a couple of weeks ago, a swarm of bees which I put in a bar-frame hive. They settled down and have been working well, and apparently quite at home. Yesterday (June 15), about noon, as I sat near the hive, I heard an extraordinary buzzing sound, and looking upward I saw at a distance, coming towards me, a quantity of bees, which almost immediately went into the bar-frame hive referred to. They were headed by a queen-bee. Did this queen-bee belong to the bar-frame hive? If so, for what purpose did she leave the hive? I was always under the impression that queens never left the hive except in case of swarming.—Major Clark, *Ferry Hill Station, Co. Durham, June 16th.*

Reply to Query No. 640.—From your description we should think your swarm must have been a second swarm, or 'cast,' headed by a virgin queen, which was, when you saw her, returning to the hive from her wedding-flight. When once the object of that flight is attained she will not leave the hive again until she leaves with a swarm.

Query No. 641.—Would you explain in next *Journal*

the following?—I had a fine swarm five pounds weight. June 6th, about 10 a.m.; I hived it in a new hive. The bees stayed quiet until 4 p.m., at which time they issued from the hive, and flew slowly for a quarter of a mile, and went into a tree. Had these bees fixed on that place beforehand? Could I drive them out with smoker if I could get at them, and is there any laying-queen for twenty-one days after swarming? I had one swarmed last season four days after first.—LOVER OF BEES, *Knocklofty, Clonmel, Ireland.*

REPLY TO QUERY No. 641.—The bees had probably selected the tree, into which they eventually went, before swarming. If, however, you had managed them rightly when hived, they would have stayed in the hive. Probably you left them exposed to the sun, when, being so large a swarm, they got too hot and swarmed out again. You are not likely to be able to drive them out of the tree, presuming you mean a hollow in a tree, by smoke. It is generally from ten to fourteen days before the young queen lays many eggs after a swarm leaves. The second swarm you speak of was headed by a young queen.

QUERY No. 642.—*Excluder Zinc.*—Is it necessary to put excluder zinc between the stock hive and crate of sections when the latter are placed over the brood-nest? If the queen has sufficient space left her for breeding in the body of the hive is she likely to enter and deposit eggs in sections?—J. PEACOCK, *Witton Gilbert, Durham, June* 18.

REPLY TO QUERY No. 642.—It is not necessary to use excluder zinc between the hive and the supers, as to some extent it affects the free passage of the bees. The queen, having a sufficiency of space for breeding in the body of the hive, would rarely enter the sections, the 3-space being generally a preventive in addition to the small space between the sections and separators.

QUERY No. 643.—*Transferring to an Anglo-Cyprian Hive.*—I have one of the Anglo-Cyprian hives; could you tell me in what way I can transfer a swarm of bees from an old straw hive into it?—J. GARRETT, *Angmering, June* 19.

REPLY TO QUERY No. 643.—The transferring of combs from skeps to the frames of the hive named will be difficult, as it cannot be accomplished without considerable cutting and waste. Any of the manuals or bee-books, or the leaflets on the subject, will give the *modus operandi* of transferring.

NOTICES TO CORRESPONDENTS & INQUIRERS.

R. C.—Your bees have done well. It would be advisable to return your last swarm to the parent stock, as otherwise it may be so weakened as to be useless.

A 'MANXMAN' is referred to our reply to Query 608, page 55, respecting the most advantageous parts in England for honey-yielding. We believe cheapness of living is generally uniform throughout the rural districts of our land.

GEO. RINGER, *Diss.—Fungus on Comb.*—The fungus on the comb out of a hollow tree is a species of *Penicillium. P. subtile* is frequently to be found in decaying trees.

JOHN HALL, *Wigton, Cumberland.—An Amateur's Frame.*—The sample frame sent is neatly made, but the features which are claimed to be improvements on the Abbott pattern are of a retrograde character. On page 84 of Vol. I. of the *Bee Journal* you will find the wide shoulders were made without angles on their inner sides, the parts being illustrated as they would be if cut out with a centre-bit; but the arc (not 'radius') soon gave way to the right angle in present use to enable it to hang in the extractor, inside which such a frame cannot lie flat. The additional strength given by the curve is compensated (?) in effect by the shortening of the frame-bar. The use of the screw under the shoulder to prevent longitudinal movement is not necessary if the frame-bars are of length sufficient to reach the outer walls of a hive; but if not, then one at each end of the frame would be required to keep it steady in case of the hive being removed. The use of screws or nails in such positions would be very inconvenient, and cause damage to both hive and bees.

SHOWS AND BEE TENT ENGAGEMENTS.

For complete list see Nos. for June 1 and 15. The following additional engagements have been since received:—

DERBYSHIRE ASSOCIATION.—Aug. 1. Chesterfield Show. Aug. 14. Clay Cross. Aug. 22. Eckington.

ESSEX ASSOCIATION.—July 5. Romford. July 11. Chelmsford. July 12. Braintree. July 23. Coggeshall. Aug. 1. Harlow.

WARWICKSHIRE ASSOCIATION.—July 25. Alveston. July 31. Hagley Park. Aug. 1. Hall Green. Aug. 6. Ragley Park. Aug. 15. Bilton and Lawford. Aug. 20. Studley. Sept. 4, 5. County Show, Coventry.

BERKSHIRE ASSOCIATION.—July 3 and 4. Bagshot. July 26. Chesham. Aug. 6. Fenny Stratford. Aug. 9. Faringdon. Aug. 16. Reading. Aug. 21. Earley. Aug. 23. Burghfield. Aug. 30. Wantage. September 12, Wokingham.

WANTED immediately, to attend the Bee-stand at Cork Industrial Exhibition, a man capable of explaining MODERN BEE-KEEPING to Visitors. State terms. J. CROSBIE SMITH, *Hon. Sec.*, Co. Cork Bee-keepers' Association, Passage West, Co. Cork.

BEE-FLOWERS. — BORAGE, blossoms continually till November. 'Best of all bee-flowers; produces honey of superior quality.'—*Manual of Bee-keeping.* Also, Wallflower and Sunflower. All strong plants. 1*s.* 9*d.* per 100, free. S. S. GOLDSMITH, Boxworth, St. Ives, Hunts.

BEE-FLOWERS. — A few hundred healthy THYME PLANTS; 4*d.* per doz., or 2*s.* per hundred. Profits will be devoted to the Missionary cause. Address, Rev. SELBY-HELE, Dunkeswell, Honiton, Devon. (1044)

BORAGE, Strong Plants, to flower in July, August, and September, 2*s.* 6*d.* per 100 plants, carriage free to any Railway Station in England, Scotland, and Wales. Address HENRY DOBBIE, Cringleford, Norwich. (V)

Long Sutton, Lincolnshire.

MESSRS. KING & Co. will Sell by Auction, on FRIDAY, JULY 6th, 1883, eighteen Stocks of BEES, fifteen in Bar-frame Hives, and Appliances. Sale at Two o'clock.—Auction Office, 4 Market Street.

BEE VEILS.

IMPROVED BEE VEILS with Wire-Gauze Fronts. Sent post-free for 18 stamps. Apply B. DING, Papworth-Everard, St. Ives, Hunts. 29

Bronze Medal awarded for Straw Skeps at the Great Crystal Palace Show, 1875.

Seventeenth Edition. Price One Shilling.

SEVENTY POUNDS A-YEAR:

HOW I MAKE IT BY MY BEES.

By the late J. W. PAGDEN.

Also, by the same Author, price Sixpence.

EARLY ARTIFICIAL BEE-SWARMING.

No watching required.

Apply to Mrs. J. W. PAGDEN, The Chestnuts, Alfriston, Sussex, by whom the same manufacturers of 'Economical Bee Furniture' are employed as formerly. 527

THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 126. Vol. XI.] JULY 15, 1883. [Published Fortnightly.]

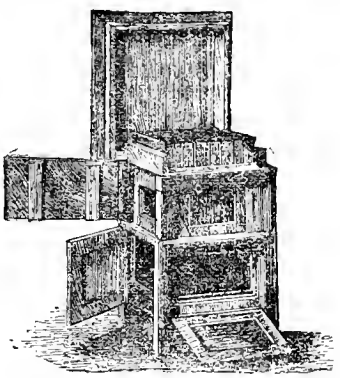
Editorial, Notices, &c.

EXHIBITION OF BEES AND THEIR PRODUCE AT KNIGHTSBRIDGE.

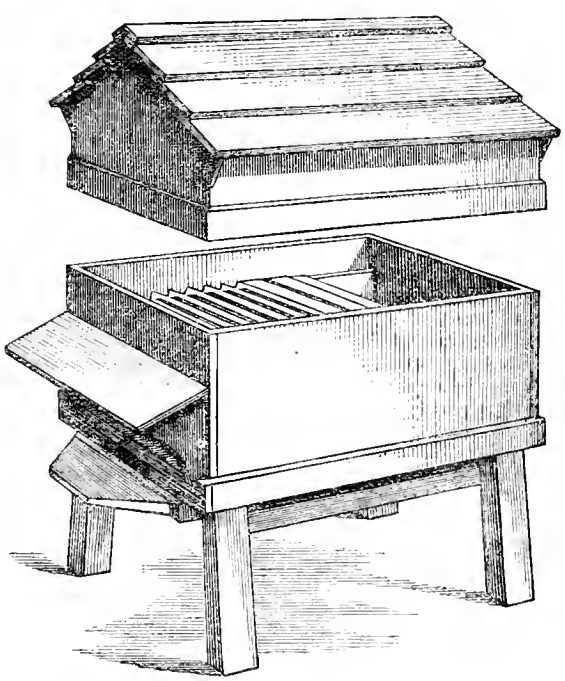
The Ninth Exhibition of bees and produce, hives, and bee furniture, was held by the British Bee-keepers' Association on July 5, 6, 7, and 9th at the Riding School, Knightsbridge, kindly placed at their disposal by his Grace the Duke of Wellington. The place was well adapted for the purposes of the Exhibition. There were 1400 feet of staging, which were well covered by the articles exhibited. There were upwards of 300 exhibits, and the hives and other appliances showed a marked advance on those of former years. The weather throughout the days of the show was all that could be desired. A large concourse of bee-keepers from all parts of the kingdom were present, and many were the interchanges of friendship and fellowship that took place. Lady Exeter and her daughter, Catherine Cecil, and several other ladies, also Earl Brownlow, were present, and they appeared to take a great interest in the show. The general public were not much attracted to the display. A brisk business was done in bee-hives and apiarian appliances, and the literature of bee-keeping was in great demand. We are not in a position to say to what extent the exhibition was a financial success, but we feel assured that the great work of breaking up the 'fallow ground' is being rapidly and effectually accomplished by these exhibitions, and that the British Bee-keepers' Association is satisfactorily making its way in the public estimation.

As the Judges' Reports on the respective classes and on the examinations of the candidates for certificates as experts will in due time be published, assigning their reasons for awarding their prizes, it would not become us to go over the ground so carefully and intelligently traversed by them. The Judges of Classes 1 to 5 were W. Carr, G. P. Cartland, J. Walker, Esqs.; 6 to 10A, Revs. W. E. Burkitt and J. L. Sisson, P. H. Phillips, J. P. Jackson, Esqs.; 11 to 14, 26 to 28, H. Bostock, C. E. Fletcher, J. Marten, Esqs.; 15, 18 to 21, 30, 31, 34, and 35, J. N. Bower, W. N. Griffin, Esqs., and Rev. J. L. Seager; 16, 17, 22 to 25, 29, 33, 36, W. H. Dunman, Esq., and Hon. and Rev. C. Feilding; 37, 40 to 42, 45 and 47, F. R. Jackson and C. Kent, Esqs.; 38, 39, 43, 44, C. E. Fletcher, P. H. Phillips, J. Walker, Esqs. and Rev. J. L. Sisson.

In the Class of Bees, Messrs. Neighbour & Son took the first prize for Ligurians—very beautiful specimens of that race. In the Observatory hives, Mr. C. G. Harrison carried off the first prize. For the best moveable-comb hive, Mr. J. M. Hooker received the first prize for his Alexandra hive. This hive took first prize at the show



at the Alexandra Palace; and at the Kilburn, Kensington, and other principal shows in 1879 medals or other prizes were awarded to it. In Class 6 the first prize was given to the Universal Hive of Mr. S. J. Baldwin. In Class 7



Messrs. Abbott Bros. were awarded first prize for their well-known Combination Hive, a very similar hive being

awarded s cond prize in Class 6. For several years past this hive has taken first and second prizes. Its chief feature consists in the frames running across the entrance parallel to the hive front. This alteration, together with its increased length from front to back, permits the hive to be worked on a new principle. As the bees preferably store honey at the furthest point from the entrance of the hive, it is made long enough to place frames of sections at the back of the brood-nest, the queen being kept out by means of a zinc excluder. Mr. Baldwin took second prize in this class with his Universal No. 2, and Messrs. Neighbour third with a Twin Hive. Mr. Blake's double-walled hive was very cheap and well made. We were pleased with the ornamental appearance of Mr. St. John's, and the workmanship of Mr. Overton's hive was worthy of praise.

In Class 8 Mr. N. Howitt's Combination Hive deservedly carried off the first prize, Messrs. Dines and Son 2nd, and Mr. Baldwin 3rd. In Class 9, Messrs. Dines carried off the first prize. This hive, made to sell at 10*s.* 6*d.*, was a marvel of cheapness, and received numerous orders during the show. Mr. Baldwin's Bridgwater Hive took second prize, and Mr. C. Stothard's third. In Class 10, Mr. Drinkwater's Amateur Hive (the only exhibit in the class) was awarded a second prize. In Class 11, Mr. T. Sells' Pine-top hive carried off the first prize. In Class 12, a prize had been offered by the Rev. E. Bartrum for the best and cheapest Stewarton; this prize was awarded to Mr. T. B. Blow, who was the only exhibitor. We can conceive that Mr. Bartrum would have been better pleased had his prize fallen to the hands of the maker, Mr. Allan, of Stewarton, instead of those of the exhibitor.

Supers.—In Class 18 there were nine entries. Nos. 65 and 66, by Messrs. Abbott, were two crates of excellent workmanship, but were disqualified from their not having been fitted up with guides. The first prize was awarded to Dr. Benthall, the arrangement of which was excellent, and the manufacture good. Dr. Benthall carried off also the second, and Mr. Baldwin the third. In Class 14, Mr. C. T. Overton received the first prize for the best rack containing 1 or 2-lb. sections suitable for cottagers.

Honey.—The exhibits of comb honey were pleasant to the eye, evenly built, and beautifully transparent. Mr. A. Rusbridge carried off the principal prizes in Classes 18, 19, 20 and 21. We cannot speak in such high terms of commendation of the run or extracted honey, some of which bore evidence that it had not been permitted to ripen. Mr. Thorpe and Miss Gayton carried off the highest prizes in Classes 22 to 25.

Comb Foundation.—Mr. T. B. Blow took first prize for thick foundation with natural bases and thick walls; Messrs. Abbott, first prize for their thin foundation, of very good quality and manufacture.

Cottagers' Classes.—Mr. Woodley was very successful, carrying off five prizes, Mr. T. Sells three, and Mr. Freeman also three.

Miscellaneous. — Messrs. Neighbour were awarded the first prize for the best collection of hives and bee furniture; Mr. Blow, for the best honey extractor; Rev. W. S. Walford for the finest sample of pure bees' wax; Mr. Blow for the best twelve 1-lb. white glass jars, and Messrs. Neighbour for the best twelve 2-lb. white glass jars.

There were besides the above several articles which were not entered for competition, amongst which were the various honey extractors of Mr. Cowan, also his honey ripener (see page 93), a solar wax extractor, an apparatus for securing queens without having to look at them when driven, &c. A very ingenious apparatus for feeding with flour candy on top of brood-nest with samples of candy was exhibited by Mr. Marten.

The following is a full list of awards:—

Bees.—Class 1—For the best stock of Ligurian bees: 1st, Neighbour and Son, 20*s.*; 2nd, T. B. Blow, 10*s.* Class 2—For the best stock of English bees: 1st, T. B. Blow, 20*s.*; 2nd, not awarded. Class 3—For the best stock of any other variety of bees other than Ligurian or English: 1st, T. B. Blow, 20*s.*; 2nd, T. B. Blow, 10*s.*

Hives.—Class 4—For the best Observatory hive, all combs to be capable of being rendered visible on both sides, to be exhibited stocked with bees and their queen, preference to be given to those hives which are so constructed as to be the least destructive to bee life: 1st, C. G. Harrison, silver medal; 2nd and 3rd not awarded. Class 5—For the best moveable comb hive, complete, for summer use, with facilities for harvesting honey, and with arrangements for wintering: 1st, J. M. Hooker, silver medal; 2nd, T. B. Thomson, bronze medal; 3rd, Abbott, Bros., certificate. Class 6—For the best moveable comb hive, complete, for summer use, with facilities for harvesting honey, and with arrangements for wintering. Price not to exceed 40*s.*: 1st, S. J. Baldwin, silver medal; 2nd, Abbott, Bros., bronze medal; 3rd, Neighbour and Son, certificate. Class 7—For the best moveable comb hive, complete, for summer use, with facilities for harvesting honey, and with arrangements for wintering. Price not to exceed 30*s.*: 1st, Abbott, Bros., silver medal; 2nd, S. J. Baldwin, bronze medal; 3rd, Neighbour and Son, certificate. Class 8—For the best moveable comb hive of a substantial character for general use. Price not to exceed 15*s.*: 1st, N. Howitt, silver medal; 2nd, Dines and Son, bronze medal; 3rd, S. J. Baldwin, certificate. Class 9—For the best and cheapest hive, on the moveable comb principle, for cottagers' use, with arrangements for summer and winter. Price not to exceed 10*s.* 6*d.*: 1st, Dines and Son, silver medal; 2nd, S. J. Baldwin, bronze medal; 3rd, C. Stothard, certificate. Class 10.—For the best moveable comb hive for general use, made by an amateur, the work of making the hive to be executed by the exhibitor: 1st not awarded; 2nd, G. Drinkwater, bronze medal; 3rd not awarded. Class 11—For the best straw hive for depriving purposes, with or without bars, cost to be taken into consideration. Price not to exceed 10*s.*: 1st, T. Sells, bronze medal; 2nd, C. T. Overton. Class 12—For the best and cheapest Stewarton hive (with bar-frames), with two or more body-boxes, two or more honey-boxes, and top, the price of the parts or the whole to be stated: 1st (offered by the Rev. E. Bartrum), T. B. Blow, 21*s.*: 2nd, not awarded.

Supers.—Class 13—For the neatest and best rack containing 1 or 2-lb. sections, with separators prepared for placing upon a frame-hive: 1st, Dr. Benthall, silver medal; 2nd, Dr. Benthall, bronze medal; 3rd, S. J. Baldwin, certificate. Class 14—For the best rack containing 1 or 2-lb. sections suitable for cottagers' use, prepared for placing upon a straw skep: 1st, C. T. Overton, silver medal; 2nd, T. B. Blow, bronze medal; 3rd, T. B. Blow, certificate.

Honey.—Class 15—No exhibit. Class 16—For the best super of honey not being sectional supers. The super to be of wood, straw, or of wood in combination with glass or straw: 1st, H. S. Heath, 20*s.*; 2nd, Cray Valley Bee Farm, 10*s.*; 3rd, J. Martin, 5*s.* Class 17—For the best glass super of honey: 1st, W. Woodley, 20*s.*; 2nd, Mrs. Meeking, 10*s.*; 3rd, W. Sells, 5*s.* Class 18—For the best twenty-four 2-lb. sections of comb-honey: 1st, A. Rusbridge, 25*s.*; 2nd, Miss M. L. Gayton, 15*s.*; 3rd, Cray Valley Bee Farm, 10*s.*; 4th not awarded. Class 19—For the best twenty-four 1-lb. sections of comb-honey: 1st, A. Rusbridge, 25*s.*; 2nd, Cray Valley Bee Farm, 15*s.*; 3rd, J. M. Hooker, 10*s.*; 4th, R. W. Davies, 5*s.* Class 20—For the best twelve 2-lb. sections of comb honey: 1st, A. Rusbridge, 20*s.*; 2nd, Miss Gayton, 10*s.*; 3rd, W. Woodley, 7*s.* 6*d.*; 4th, E. Gulston, 5*s.* Class 21—For the best twelve 1-lb. sections of comb-honey: 1st, A. Rusbridge, 20*s.*; 2nd, R. W. Davies, 10*s.*; 3rd, Cray Valley Bee Farm, 7*s.* 6*d.*; 4th, E. Gulston, 5*s.*;

5th, Rev. W. S. Walford, highly recommended. Class 22—For the best exhibition of run or extracted honey in twenty-four 2-lb. glass jars: 1st, R. Thorpe, 20*s.*; 2nd, Mrs. J. Goodhart, 10*s.*; 3rd, not awarded. Class 23—For the best exhibition of run or extracted honey in twenty-four 1-lb. glass jars: 1st, Miss Gayton, 20*s.*; 2nd, Cray Valley Bee Farm, 10*s.*; 3rd, R. Thorpe, 5*s.* Class 24—For the best exhibition of run or extracted honey in twelve 2-lb. glass jars: 1st, Miss Gayton, 15*s.*; 2nd, R. W. Davies, 10*s.*; 3rd, A. D. Doughty, 5*s.* Class 25—For the best exhibition of run or extracted honey in twelve 1-lb. glass jars; 1st, Miss Gayton, 15*s.*; 2nd, R. Thorpe, 10*s.*; 3rd, R. W. Lloyd, 5*s.*

Comb Foundation.—Class 27—For the best sample of thick comb foundation, manufactured in the United Kingdom from pure bees' wax, not less than 2½ lbs. for worker-cells, with price per lb. attached: 1st, T. B. Blow, bronze medal. Class 27—For the best sample of thin comb foundation, manufactured in the United Kingdom from pure bees' wax, not less than 2½ lbs., for supers, with price per lb. attached: 1st, Abbott, Bros., bronze medal. Class 28—For the best, cheapest, and simplest appliance for making comb foundation, to be shown at work in the presence of the Judges: 1st, Neighbour and Son, bronze medal: 2nd not awarded.

Cottagers' Classes (no entrance fee).—Class 29—For the best super of honey, not being a sectional super: 1st, W. Woodley, 20*s.*; 2nd, W. Woodley, 15*s.*; 3rd, T. Sells, 10*s.*; 4th, G. Dossett, 5*s.* Class 30—For the best twelve 2-lb. sections of comb-honey: 1st, W. Woodley, 20*s.*; 2nd, G. B. Lacy, 15*s.*; 3rd, T. Sells, 10*s.*; 4th, G. B. Lacy, 5*s.* Class 31—For the best twelve 1-lb. sections of comb-honey: 1st, R. H. Coppin, 20*s.*; 2nd, R. Edwards, 15*s.*; 3rd, T. Sells, 10*s.*; 4th, W. Woodley, 5*s.* Class 32—For the best exhibition of run or extracted honey in twelve 2-lb. or twenty-four 1-lb. glass jars: 1st, W. Woodley, 20*s.*; 2nd, J. K. Filbee, 15*s.*; 3rd, G. B. Lacy, 10*s.*; 4th and 5th (equal), R. Atkin and R. H. Coppin, 5*s.* Class 33—No exhibit. Class 34—For the best twelve 2-lb. sections of comb-honey: 1st not awarded, 2nd, M. Freeman, 15*s.*; 3rd and 4th not awarded. Class 35—For the best twelve 1-lb. sections of comb-honey: 1st, M. Freeman, 20*s.*; 2nd, J. Woodland, 15*s.*; 3rd and 4th not awarded. Class 36—For the best exhibition of run or extracted honey in twelve 2-lb. or twenty-four 1-lb. glass jars: 1st, M. Freeman, 20*s.*; 2nd, 3rd, and 4th not awarded.

Comestibles.—Class 37—No exhibit.

Miscellaneous.—Class 38—For the best and largest collection of hives and bee-furniture most applicable to modern bee-keeping, no two articles to be alike: 1st, Neighbour and Son, 40*s.*; 2nd, T. B. Blow, 30*s.*; 3rd, C. T. Overton, 20*s.* Class 39—For the best honey extractor: 1st, T. B. Blow, silver medal; 2nd, C. T. Overton, bronze medal; 3rd, T. B. Blow, certificate. Class 40—For the finest sample of pure bees' wax, not less than 6 lbs. in weight, obtained from combs made by the exhibitor's own bees: 1st, Rev. W. S. Walford, 10*s.*; 2nd, W. Sells, 7*s.* 6*d.*; 3rd, S. J. Baldwin, 5*s.*; 4th, Abbott, Bros., 2*s.* 6*d.* Class 41—For the best twelve 1-lb. white glass jars, with covers and fastenings complete, to be exhibited in a simple and inexpensive travelling crate for safe conveyance by rail or otherwise: 1st, T. B. Blow, 20*s.*; 2nd, Neighbour and Son, 10*s.*; 3rd, T. B. Blow, 5*s.* Class 42—For the best twelve 2-lb. white glass jars, with covers and fastenings complete, to be exhibited in a simple and inexpensive travelling crate for safe conveyance by rail or otherwise: 1st, Neighbour and Son, 20*s.*; 2nd, Rev. W. S. Walford, 10*s.*; 3rd not awarded. Classes 43, 44, 45, not awarded. Class 46—no entry. Class 47 not awarded.

The number of candidates who presented themselves for certificates was, as might have been expected, not so large this year as last, as no examination had been held prior to 1882. The syllabus of examination, moreover, looked very formidable on paper, more formidable probably than the candidates who screwed their courage up for the occasion and presented themselves on the appointed day found it to be when the questions were before them. Ten candidates entered their names, and we believe paid the examination fee; only seven, however, appeared at Knightsbridge, and some of these shrunk from the lecture required of all candidates who wished to obtain a first-class certificate. The skill of each of them in manipulating and driving bees was tested on a waste piece of ground not far from the Riding School, and some of the astonished spectators would scarcely believe that there was no 'witchery' or trickery when the bees were driven and the queen was caught, as she was in most cases. The manipulations are said to have been good, and most, if not all the candidates, had evidently had considerable practical experience. The candidates were also questioned on various points by word of mouth as well as on paper. Some of the candidates were willing to lecture in the Exhibition Hall, and as they were required to speak for any time not exceeding twenty minutes on any subject appointed by the examiners, the test was a severe one. It must not be forgotten that candidates who gain a first-class certificate are usually engaged as experts by County Associations, so that these tests are really required.

On Friday the General Meeting of the Members of the Association was held, the President, the Baroness Burdett-Coutts, in the chair. The Baroness kindly offered a portion of the Columbia Market as a Metropolitan Honey Depôt.

At the close of the General Meeting the President of the Lincolnshire Bee-keepers' Association, the Bishop Suffragan of Nottingham, gave away the prizes. This was the first occasion on which a President of a County Association had given away the prizes in his capacity of an *ex-officio* Vice-president of the British; and it is hoped that such acts as these will strengthen the union between the County Associations and the Central Association.

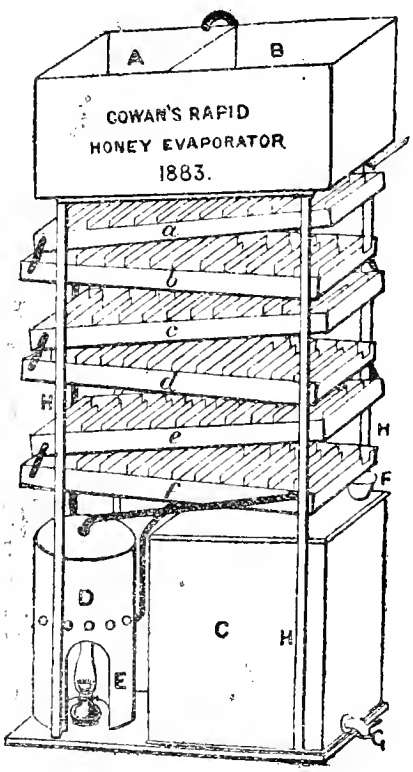
During the course of the show several interesting lectures on Bee-keeping were delivered by the Rev. W. E. Burkitt, and others. We were also pleased to note that the addresses of the experts were listened to with marked attention by large audiences.

On Thursday, Mr. Otto Hehner read a paper on 'The Adulteration of Honey and Wax;' and on Saturday, Mr. F. Cheshire delivered a lecture on 'The Structure of the Bee in relation to Fertilization,' which was followed on Monday by a lecture by the same gentleman on 'Bees as Hybridizers and Fruit Producers: or, the Dependence of Orchard Crops upon Bees.' The above paper and lectures will furnish us with material for future numbers.

RIPENING HONEY.

The honey harvest could be very much increased if as fast as the nectar is collected from the flowers and put into the cells by the bees it could be safely extracted. It is well known that after the bees store their honey and before it is sealed up, it has to undergo a process of ripening, or it would be liable to ferment. The heat of the hive assists in the process of evaporation, and only when the superfluous moisture has been extracted from it are the cells closed. Those who have had experience in extracting honey know the honey in the sealed combs is much thicker than that in the open cells, and that it is only safe to put the former into jars. There is a great deal of honey shown and sold that is unripe, but this in a very short time begins to ferment, and even becomes sour. The appearance of unripe honey is also peculiar. It has a decided green hue, and is not improperly called

'green honey.' In all books we are told not to extract from unsealed combs, and also for wintering we are recommended to extract all honey not sealed over, because the thin, watery honey is likely to produce disease. It is from its readiness to ferment that disease (dysentery) is produced. When bees collect honey they put it into the empty cells, a little into each, so as to expose a large surface of the honey to the influence of the heat of the hive. If the income has not been very great during the day, the bees are able to evaporate the moisture sufficiently during a warm night to enable them to carry the honey from the lower cells to those above. As the honey becomes ripened it is sealed over, that at the top being ready first. If, on the other hand, the bees have collected a very large quantity of honey in the day, they are not able to evaporate it in the night, and, therefore, do not store it up above. All the cells being full, the bees returning with honey do not find anywhere to put it, and the consequence is that they waste their time in converting it into wax, and adding it to their cells. When bees are in this condition I think instinct (or reason) prompts them to make preparations for swarming. Queen-cells (which take a large quantity of wax) are constructed as a preliminary step. Now if we wish to prevent this we should extract the honey, and by extracting it daily a very much larger quantity of honey can be obtained than if we waited for it to be sealed over. We must also bear in mind that the sealing over is done at the expense of honey, twenty pounds being consumed to produce one pound of wax. Hitherto no satisfactory method has been devised for ripening honey, the ordinary cans doing very well when a small quantity of unripe honey is extracted with a large quantity of ripe honey, but they are quite unfit for large quantities. From experiments I have been carrying on I find that if honey is subjected to a heat under 200° Fahrenheit it is in no way injured either



in colour or flavour. It must, however, not be put into an oven, or the flavour is decidedly spoilt. The illustration shows the sort of apparatus I have devised for evaporating honey, and which has been found to work satisfactorily. The honey can be passed over it as many times as it is necessary to bring it to a proper consistency, and, being exposed to the air, the evaporation is very rapid. It is very compact, the space occupied being very small. The honey evaporated in this way can be put up into jars at once, and is much clearer than the ripe honey extracted, because the warmth drives all the air-bubbles to the top of the receiving-can, whereas in the thick honey the air-bubbles are very slow in ascending, and sometimes, if the honey is very thick, they do not rise at all, and gives the honey a cloudy appearance. By referring to the figure it will be seen that the evaporator consists of series of trays heated with hot water, and the honey passing over these is received in the tank below in a fit state to put up into jars. By referring to the illustration, it will be seen that the tank at the top is divided into two compartments, A being for water, and B to contain the unripe honey as it is taken from the extractor. Below the tank are the trays, six in number, *a*, *b*, *c*, *d*, *e*, *f*, and they slope in opposite directions. Each of these trays has a hot-water chamber at the bottom, and the top portion is divided by means of partitions of tin in such a way that the honey flows backwards and forwards, and comes in contact with every portion of the warm surface. D is a small boiler heated by a gas jet or lamp, and has a pipe from tank A to keep it supplied with water. Another pipe is taken from the top of boiler D, and communicates with the lower end of tray *f*. Each tray has a connexion with the next one above it at opposite sides, so that the water when heated in the boiler passes into tank at the bottom of tray *f*, then into *e*, then *d*, and so on until it reaches the higher point of tray *a*; it then returns by a pipe direct to the boiler. In this way a constant circulation of hot water is kept up; and to allow for the expansion of the water in the event of its boiling, another pipe leaves the highest point of tray *a*, and is turned over tank A, as shown in illustration.

When it is required to work the machine the unripe honey is put into tank B, and water into tank A, taking care to keep this always about half full, the lamp lighted, and as soon as the water becomes warm the valve at the bottom of the tank B is opened by the lever I, and the honey is allowed to flow into the top tray. The quantity can be regulated by opening the valve more or less. The thin honey flows along the zigzag channel or tray *a* until it reaches the lowest end of it, when it drops down into tray *b*; and so from one tray to another until at last it runs from the tray *f* through the funnel F into the receiving-tank C, and can be bottled off by means of the valve G. In this way the honey travels a distance of 100 feet over a heated surface, and all the superfluous moisture is evaporated on its passage. If the honey is very thin, it may require to be passed through the machine a second time. The machine is constructed entirely of tin, as I find zinc or galvanised iron injures honey. From the rapidity with which the machine acts, I have called it 'The Rapid Honey Evaporator.'—Thos. Wm. Cowan, *Comptons Lea, Horsham, June* 1883.

ASSOCIATIONS.

HAMPSHIRE BEE-KEEPERS' ASSOCIATION.

This Association held its first public demonstration on June 26, 27, 28, and 29 at Winchester, in connexion with the Royal Counties Agricultural Society at their great annual show, which, it will be remembered, was held last year at Brighton. The show was very largely attended by visitors from all parts of England, and to

make the bee interest as attractive as possible, the Hants Association very wisely held their lectures with open doors, there being no charge for admission on any of the days. We do not think too much attention can be paid to this system, where, practicable as it is, a serious recognition of the aims of all Bee-keepers' Associations 'to encourage bee-keeping amongst the poor,' who, as a rule, refuse to pay admission money, and are thus prevented learning the practical lessons taught. The lectures were given by the Hon. Secretary and other members of the Association, Captain Martin being specially retained to fill up intervals.

The presence of ladies in the driving-tent added considerably to the interest, and the skilful way in which Mrs. Bellairs 'drove' some of the hives was a very valuable indication that bee-keeping may be managed with equal success by either sex. T.R.H. the Prince and Princess of Wales visited the show on June 27, and though the weather was unfavourable, the bee tent was thronged, and very many people addressed.

There was a fair display of honey, both sectional and extracted, a 44-lb. exhibit of sections off one hive, belonging to the Rev. W. E. Medlicott (one of the committee), exciting much admiration.

A CHANCE FOR STARTING AN ASSOCIATION FOR GLOUCESTERSHIRE.

In connexion with the Gloucestershire Agricultural Society's Annual Meeting, to be held at Beckley on July 24, 25, 26, the Wilts Bee-keepers' Association will hold an exhibition of Bees, Hives, Honey, &c., and displays will be given in the Bee Tent by certificated experts. Entries will close July 20th. Apply to the Rev. W. E. Burkitt, Hon. Sec. W. B. K. A., Buttermere Rectory, Hungerford, by whom also donations towards the expenses of the Bee Show will be thankfully received.

Foreign.

AMERICA.

Moving Bees Short Distances.—During the previous winter a bee-keeper related to me how he moved a large apiary from one village lot to an adjoining lot without sustaining any loss of bees. In the centre of the apiary stood a honey-house, which was, one afternoon, moved to the centre of the lot that was to be the future home of the bees, and a board fence that skirted the apiary upon one side was also moved so that it would occupy the same position in regard to the newly located apiary. After the bees had ceased flying in the evening they were fastened into their hives and carried to their new location. Early the next morning several smouldering fires were started upon the old location, and kept going a good part of the day. Before releasing the bees a board was placed in a slanting position in front of each hive, and the bees were disturbed by smoke, and by drumming upon the hive several times in the morning before opening them. When finally released the bees were thoroughly alarmed, which alarm was increased, and their headlong flight checked by the boards in front of the hives. Before leaving for the fields each bee carefully marked the location, and the few that returned to the old location found smouldering fires and smoke in place of the familiar hives, honey-house, fence, &c., while it required only a few circles and observations to discover these old landmarks, and a little exercise of the memory to single out the location of the hive from which the morning start had been taken. My friend said that the loss of bees, or trouble caused by their going back to the old location, was almost nothing.—W. Z. Hutchinson, *Genesee County, Mich.*

FRANCE.

The *Bulletin de la Société d'Apiculture de la Somme* chronicles the death of Monsieur Marie Paul Alexandre d'Alençon, a member of the bee community, particularly esteemed in the Orne Department, where the deceased gentleman spared no pains to disseminate the most rational systems of bee-culture. The same journal publishes the list of the prizes awarded at the bee show held at Amiens between the 5th and 14th of May last, which are as follows:—

First Section.—*For the best collection.*—1st, gold medal, the gift of Mons. Cauvin, of the General Council, Mons. Louis Sauvage, of Corbie; 2nd, silver-plated medal, the gift of Senator Dauphin, Mons. Désiré Poillon, of Saleux; 3rd, silver medal, offered by the town of Amiens, Mons. Delacourt d'Albert; 4th, silver medal, offered by Mons. Goblet, M.P., Mons. Morel-Turibe, of Bellancourt; 5th, silver medal, offered by the Horticultural Society of Picardie, Mons. Eloi Gorlier, of Sarnois (Oise); 6th, bronze medal, offered by the 'Comice Agricole' of Amiens, Mons. Leroy-Denis, of Namps-au-Val; 7th, bronze medal, offered by the Society of French Agriculturists, Mons. Gustave Doucet, of Vaux-sous-Corbie; 8th, honourable mention, Mons. Cagé-Dréyelle, of Mirvaux.

Second Section.—*Hives and Implements.*—1st, silver-plated medal, offered by the Amiens Industrial Society, Mons. Louis Sauvage, of Corbie; 2nd, silver medal, offered by Mons. Gaulthier, Senator of France, Mons. Hamond, of Corbie; 3rd, silver medal, offered by the 'Comice Agricole' of Amiens, Mons. Hector Thénard, of Hamel.

Third Section.—*Wax.*—1st, silver-plated medal, offered by the town of Amiens, Mons. Dumont-Legueur, of Pont-de-Metz. *Mead.*—2nd, silver medal, the gift of Mons. Alphonse Fiquet, Mayor of Amiens, Mons. Léon Jonas; 3rd, silver medal, the gift of Mons. Gaulthier de Rumilly, Senator of France, Mons. Plaisant, of Englebelmer.

Fourth Section.—*Artificial Comb-foundation.*—Prize, medal offered by the 'Comice Agricole' of Amiens, Mons. Robert Denis, of Vendhuile. *Honey.*—Silver medal, Mons. D. Poillon, of Saleun.

The 'Prize of Honour' for visiting apiaries, and consisting of silver medal, was granted to Mons. D. Poillon.

The Minister of Agriculture honoured the show with a visit, and before leaving it congratulated the President of the Exhibition in most encouraging terms upon the general effect of the undertaking.

SWITZERLAND.

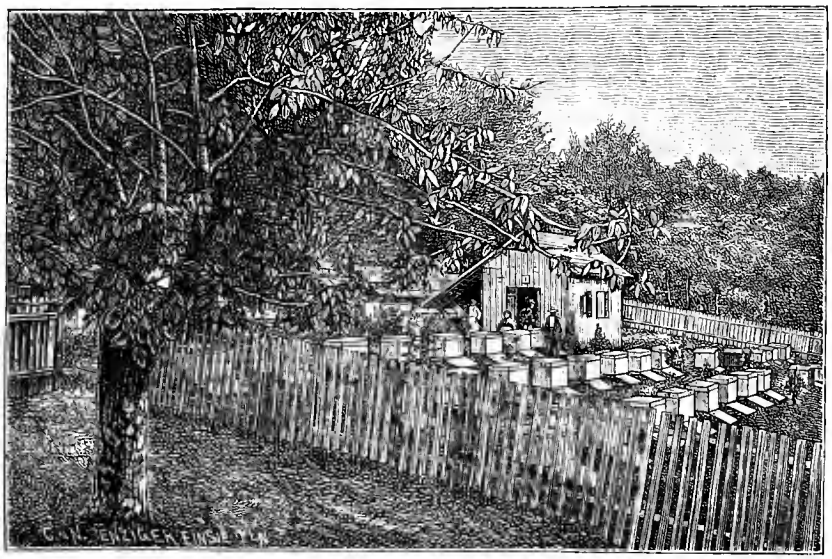
Whatever may be the consequences of the heavy rains which prevailed throughout the country in the middle and latter part of June, bee-keepers are unanimous in reporting that the first two weeks of it were of the most favourable on record for the secretion of honey, particularly in the districts of Nyon, where before the 10th of the month, the generality of strong stocks had already filled one, and in many instances two of Dadant's supers, the collective weight of which would represent about 90 lbs. of honey, without taking into consideration what would be slung from the body-boxes.

In the early part of last spring Mr. P. Feuillebois, of Palestro, Algeria, favoured the Editor of the *Bulletin d'Apiculture* with a queen of the Kabyly race. She arrived safely in a specially prepared box, and on the 12th of May she began depositing eggs in a stock to which she was introduced. The result of the observations as to whether the introduction of these African bees on a large scale would be desirable, will be made known as soon as its merits or demerits can be practically tested.

The first edition of the manual *L'élèvage des Abeilles par les Procédés Modernes*, by M. G. de Layens, is exhausted, and a second issue, containing sundry corrections and additions, is now in the press.

A SWISS APIARY.

Through the courtesy of Monsieur Edward Bertrand, Editor of the *Bulletin d'Apiculture pour la Suisse Romande*, and Monsieur J. Seker, Editor of the *Schweiz-Bienen-Zietung*, we are enabled to give an illustration of a model Swiss apiary, the property of Monsieur Bertrand. This apiary is situated at Allevays, at the foot of the Jura mountains, about 5 miles from Nyon, where its proprietor resides, on the Lake of Geneva.



THE APIARY OF M. BERTRAND, ALLEVAYS, JURA MOUNTAINS.

The photograph was taken a few years ago, when it was inaugurated, and has now a larger number of stocks. The hives to be seen on the back-ground are of the 'Dadant' pattern, and those nearer the spectator are constructed on the 'Layens' system. This apiary is well known among Continental bee-keepers generally, but Swiss in particular, as being the one in which Mons. Bertrand investigated successfully Monsieur Hilbert's system of curing foul brood. To Monsieur Hilbert we are also indebted for the experiments he has made in feeding bees with milk and eggs, which have resulted in such benefit to bee-keepers. Being situated so near the Lake of Geneva, Mr. Bertrand's apiary is, moreover, within easy reach of visitors.

Correspondence.

*** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

All Correspondence must bear the name and address of the writer, not necessarily for publication, but as a guarantee of good faith.

ON THE PROPER USE OF THE MORE PROLIFIC EASTERN RACES.

Text: 'The Rev. George Raynor on his Cyprians.'

I was very pleased to read the Rev. George Raynor's article on 'The Cyprian and Syrian Bees,' perhaps because it gives an opportunity for airing my theory of the proper use of the more prolific races. I have never indulged myself with any exotic bee except the Ligurian, and I have never travelled East, but I venture to assume that the programme of a thoroughbred Cyprian queen is to begin breeding as soon as possible, and to continue right on; and in her natural climate I imagine there is nothing to prevent her doing so except an occasional honey glut.

Now in England, I think, your Cyprian, who, of course, is young and active, or she is not worth having, should be constantly fed, from the earliest possible period in the spring till Michaelmas, by which time she will probably be about worn out.

In the spring spread your brood as fast as possible, and by the time you have ten combs of brood you may begin, once, twice, or three times a-week, to take away a comb of sealed brood, and slip an empty comb in the middle. I should not even trouble them to work out foundation, let them do nothing but raise brood—brood to gather honey in other hives.

I believe a good queen, Cyprian or Ligurian, treated thus, and milk-fed all the summer, would astonish even some of the wisest of us.

At Michaelmas, if your queen is not quite worn out and done with, give her a strong lot of brood from a quiet black or acclimatised stock, and *divide* her brood amongst your other stocks.

The only drawback is that with Cyprians, you would certainly spoil or destroy the amiability of your other stocks by the leaven of malice and wickedness that you would be constantly introducing.—The Farmer.

AN ERRATIC QUEEN: SWARMING LATE IN THE DAY.

Allow me to send you a couple of facts which may be of practical interest to some of your readers. Last year a gentleman living in the centre of Windsor, and at a considerable distance from any bee-keeper, sent me word that there was a swarm in his garden, and that I was welcome to it for the fetching. Naturally, I gladly accepted the gift, and having hived it late in the evening in a skep, I took the colony to my garden, half a mile away, early the next morning, and put it into a bar-frame hive. This year the same queen led off a swarm on May 28th at 10.30 a.m. I was unable to attend to the hiving till midday, and then, just as I was ready, off my lady went, with all her host, for nearly a quarter of a mile. Having found the place of settling, I speedily got the swarm hived and shaded from the sun. I delayed fetching the bees home till 3.30 p.m., that all might settle in, as they seemed rather restless, when, to my second disappointment, provoked, I believe, by a dog meddling with the hive, away went the enterprising queen once more, and this time so far that, though I traced her course for nearly half a mile, I lost all further evidence of her whereabouts. Moral: If you have an erratic queen, secure her and her attendant host as soon as you can, and put them in safe and quiet quarters. My second point is the selection of the unusual hour of 5.10 p.m. for swarming from a skep. I had for several days expected the swarm, weather and other conditions being favourable, but for some inscrutable reason her majesty chose to

delay her outing till kettle-drum time. Moral: Don't be quite sure that you may not lose a natural swarm hours after midday, unless you keep a watch over the proceedings of your bees. A further lesson may be that artificial swarming is frequently the safer course to adopt.—W. H. Harris.

BEE-FLOWER: THE GIANT PARSNIP.

Among the bee-flowers I see mentioned in your *Journal* I do not find 'the Giant Parsnip.' I know no other, not excepting heath, that bees seem so fond of. Should any of your readers wish for seed I will send it to them when ripe if they send me a directed envelope. Being a biennial it will not bloom for two years. It will grow anywhere; I have it in my rookery, and once established sows itself. The seed stem with me is about ten feet high.—J. W. Gaisford, *The Grove, Dunboyne, Co. Meath.*

EXPERIENCES.—BEE-STINGS.

I shall be much obliged if you will publish my experiences of bee-keeping. Early in June I got a Ligurian swarm in straw skep and hived them successfully in a bar-frame hive. I examined the bees for two or three days and straightened some of the comb-foundations which had gone crooked, &c. Emboldened by the fact that not a bee attempted even to alight on me I discarded my bee-veil. I had never worn gloves at all. On the fourth or fifth day some of the bees flew at me angrily and stung me. I put on the bee-veil and resumed operations, getting several stings on my hands, about which I did not think much. A couple of days afterwards, when filling the feeder, I got several stings on my hands, about which I did not much care, and I should have disregarded them entirely but for the after effects, which were as follows:—Three or four days after the last sting I perceived a rash on my hands and wrists where I had been stung. My hands and arms gradually swelled from the knuckles to the elbows to about double their usual size, they were hot and throbbing, painful and itchy, alternately: in fact, just like a huge chilblain from knuckles to elbows. For one day I was so feverish that I had to stay in bed most of the day. The swelling gradually subsided, and now, as I write, the skin is peeling off my wrists. I should much like to know whether any of your readers have had a similar experience, and if they have I should like to learn whether I am now inoculated, and whether I may defy stings in future, or whether half-a-dozen stings will bring on a similar attack every time. Information is necessary, for every time I or any one else approaches the hive several bees fly straight at the intruder and sting or attempt to sting. I should add that both before and after the occurrence I was in perfect health, so that the stings alone were the cause of my attack. I used the smoker, was slow and careful in handling so as not to hurt the bees, and cannot understand why they have turned so wicked after being so peaceful for the first few days. I removed the stings at once. As all the bee-books state that a few stings render one indifferent to the poison, I shall be glad to learn your opinion, and that of any readers who have had a similar experience, and to have the benefit of any hints or advice on the subject.—Amateur, *Rathowen.*

[No fault can be found with the bees; they were in the first place peaceful, good-tempered, and easily handled. For the change that has occurred, we are afraid that our correspondent must find some reason outside his bees. Perhaps it may be over-meddling, wrongful handling, or so forth. We are sorry that we are not able to pronounce him 'so inoculated as to defy stings in future,' but rather we believe that he has to pass through 'many a sorrow,' many a pain, before he arrives at that blissful state. As to his special sensations when stung, we regret to learn that such effects have resulted, and we would desire to refer him to a letter from Dr. Walker on p. 274, Vol. X., whence he will get the best of advice.]

DESTRUCTION OF DRONES.

I have a few stocks of bees, and my neighbour has about the same in number. His hives and mine are about twenty-five yards apart, and when we saw that splendid advice of Mr. T. W. Cowan in *British Bee Journal* for May 1st, 1883, we decided to set to work and to follow it. On examining my strongest hive we found some drones hatched, and many more about to hatch; so we determined to raise the queens in his strongest hive, which proved to have no drone-bees nor drone-brood. We followed the advice given, and we hatched all the queens we needed, and they are all laying nicely now. As we had no other drones at the flight of the queens, we felt we have got just what we wanted, for which we beg the above gentleman to accept our united thanks.

On Saturday last I noticed a very large number of drones going in and out of the above-mentioned drone-hive, and thinking them now of no more use, but only to consume what the workers collected, I set to work to kill them as they came out and in at the entrance, and I continued until I could not see one. I noticed when I only wounded one, instead of killing it, the worker-bees running up to it as if to help and succour it. On Sunday morning I noticed some of the drones lying in the front of the hive on the ground not quite dead, and the worker-bees still round about them, as mentioned above; and I could not see one drone-bee alive all day yesterday or to-day. Will you kindly tell me in your next issue if I have done wrong in killing the drones?

I may also state that we are making our own comb-foundation from the advice given in *B. B. Journal* for May 15th, 1883, and it proves to be all that we need.—G. Wells and Thos. Hart, *Burham Works, Aylesford, near Maidstone, Kent, July 2.*

[While we are pleased that the teachings of the *Journal* have proved of some service to our correspondents, we are inclined to side with the worker-bees in their protest against the murderous onslaught made on their brothers of the hive. The narrative given of this humanisation of the bees is simple and affecting. We, in imagination, see their sad dismay at the dismal sight of their slaughtered comrades, and we fancy we note that

'Tears, such as "workers" weep, burst forth;'

and when these bees entered the hive, and were interrogated by their queen as to the reason of their downcast look and their melancholy countenance, we think we hear the voice of one in reply saying in Virgilian words,

'Infandum, Regina, jubes renovare dolorem.'

Evidently these drones were not very numerous, and as the bees were not disposed to grudge them their sup and their sip, their lives might have been spared. There may be a divinity which 'doth hedge round a king,' yet we know that even in the best-regulated hives contingencies will arise, such as accidents to a queen or the occurrence of new swarms, where the known functions of drones may be brought into requisition; and there may be many occult services rendered by them, such as keeping up the temperature of the hives and assistance given in ripening honey: their cheery song, too, may tend to lighten the labours of their companions; and others that we know not of. There is 'a time for every purpose under heaven,'—a time for drones to live, and a time for drones to die; and in our opinion, and in that of the worker-bees, and we are inclined to think in that of our correspondents also, this latter time had not yet arrived.]

DRONES: A REQUEST.

Can any of your readers oblige the undersigned by forwarding to him (alive if possible) drones, the produce of unfertilised queens, or the produce of so-called fertile workers?—J. H. Barrow, *Clyderhow, Stafford Road, Ellesmere Park, Eccles, near Manchester.*

SINGLE *v.* DOUBLE SIDE HIVES.—BEE CANDY, &c.

If those who have double-walled hives, and intend to follow Mr. A. Watkins' advice, and convert them into single-walled, will take Punch's advice and 'don't,' they will be on the safe side. Theories and arguments are all very well when founded on careful experiments, but there are too many theories, which, if tested by direct experiment, would be exploded at once, simply through an unforeseen factor. You might just as well argue that a single brick-house is as good to live in as one of double brick. The great cause of loss in double-walled hives is contracting the entrance too much in winter, damp quilts, and want of ventilation. When I have finished my experiments, I intend to go through the whole subject. In the meantime, I just give one result.

On the 5th of August last I removed a black queen from a stock in a double-walled, cork-dust-packed hive, giving them two days afterwards a Syrian queen-cell, which duly hatched out, got pure mated, but did not begin to lay until spring. On the 8th of June—upwards of nine and a half calendar months after every black bee had hatched—there were still a number left in the hive. This stock has been kept in a strictly normal condition, without having had a drop of syrup or food. Now, if bees can be kept so long alive in a warm, dry hive, what is the use of abnormal stimulation in autumn and spring, or cold single-walled hives?

Mr. S. Simmins condemns 'candy' for bees. I hope bee-masters will give this article careful study. I am of opinion it will prove in the future more valuable than foundation. I have not had much experience with it so far, but I may say what little I have has opened my eyes very wide indeed. Last October a neighbour asked me to look over his two stocks, when, lo! I found they had not two weeks' supply of food to winter on. I set him to boil some candy (our only chance), which was poured into two frames—one for each hive—having twine crossways, riddle-like, which kept it from falling out. Holes were bored through the candy and placed next the bees, an empty comb being placed between candy, frame, and dummy. These bees wintered uncommonly well, had more than half of it uneaten in April, and never received a drop of syrup all spring, and up to date have yielded a very large amount of honey; the two stocks having been saved on less than twelve pounds of hard sugar, and no further trouble. With this fact, I think bee-keeping is passing into quite a new phase, and will be quite revolutionised when we can pass bees in swarming condition from August to April on 2*s.* worth of sugar—sending all the honey to market. —John Hewitt, *Sheffield, June* 20.

A MAN I HAVE HOPE OF.

Strange ideas some people have, but it is better to have strange ones than none at all. Here is the substance of an exchange of remarks at our show at Truro on the 21st between a door-keeper and a visitor from the country. The latter went out disgusted. 'Now that's a dead take-in,' said he; 'they wasn't fair to they bees.' 'How is that, then?' 'Why, they gived 'em chemicals.' 'No; no such thing: 'twas only tobacco out of his pipe.' 'I do know better. Don't you tell me. I do know something 'bout bees. He gived 'em chemicals. I know he did.'

Now this, sir, is a man I have some hope of. He was evidently much impressed with the effects produced, and after thinking more about the cause, I should not be at all surprised to find him next year a ready manipulator on the modern system.—A Committee-Man, *June 28th.*

BLACKS *v.* LIGURIANS.

In the November (1882) number of *B. B. J.* I expressed my opinion respecting the above, and can now more fully endorse it. This spring I commenced with fourteen stocks in Abbott's Standard hives, consisting of blacks and hybrids, the latter having young Ligurian queens impregnated with black drones; and up to the present time I have found the blacks in most points far superior to the cross-breds. It has been repeatedly written that the Ligurians, or hybrids, are much more profitable than the blacks, but my experience has proved the contrary. It is true they are handsome and good breeders, but that is not profit. The hybrids raise enormous quantities of brood, and in the spring of the year it certainly is a very gratifying sight to take out the large frames of comb full from top to bottom and from side to side with brood; but bees are of but little use unless they store honey. Last autumn I found, after extracting, that the hybrids required more than double the quantity of food than the blacks, for the latter stored it, whilst the former used it for raising brood. I believe the blacks will raise bees fast enough for all ordinary purposes. At present my black stocks are (or, at least, when the weather will allow) filling sections nicely with honey, whilst the hybrids fill them with brood; even if I use excluding zinc the queen will manage to get into the sections. Of course, I do not mean to infer that all my stocks are the same. I write of their *general* character. Again, the blacks are more likely to give the best honey results, for the following reason:—A strong stock of hybrids are likely to swarm out at any time, even if there is but very little sunshine, and oftentimes will when there is plenty of room in the hive. This season I have had many unwished-for swarms from the hybrids, but none from the blacks. The cross-breds well maintain their character as to spitefulness, for three or four of my stocks are perfect demons, and will attack any one within a distance of fifty yards of their hive; and if the face is covered will get under the clothing. When opening their hives, it is almost impossible to frighten them, smoke having but very little effect upon them.

I am, therefore, forced to the conclusion that the profitable properties of the Ligurians have been overestimated, and my only reason for penning this is that others will not change *all* their stocks, as I did, from blacks to hybrids, and then have the trouble of requeening them again with blacks, for I am certain no one will keep hybrids for pleasure or profit.—W. J. G., *Ottery St. Mary.*

[We are of opinion that the above letter does not give us much assistance in the solution of the question whether Blacks or Ligurians are the more profitable to bee-keepers, as throughout our correspondent appears to take it for granted that Ligurians are identical with hybrids. The letter should rather have had the heading 'Blacks *v.* Hybrids;' we then could have coincided with his remarks as to their fierceness and irascibility, though we are not able to agree with him as to his statement that 'smoke has little effect on them.' We are inclined to say that, though our correspondent has not derived much comfort from his hybrids, the bees have done well —they have given him many swarms, which, in the opinion of most bee-keepers, would have given them some claim to his favour; and we believe that by the end of the season they will vindicate their character in respect of their honey-gathering powers, though they have not evidently had their fair share of attention from their owner.]

WORKER-BEE IN QUEEN-CELL.

In reference to your remarks in July *Bee Journal*, enclosed I beg to hand you a worker-bee which I took from a queen-cell on Monday, the 2nd inst. The hive was swarmed artificially, after which three queen-cells were set. A week ago a cast, headed by one of the young queens, issued. I subsequently examined the hive, and found the young queen all right, but one queen-cell still unopened. I cut this out on Monday, and took particular notice that it had not been opened. I broke the end off, and lo! there appeared the enclosed worker-bee dead. I send you the cell, and you will notice the bee-pap is not more than one third consumed, and a mark made by a knife-point shows where I took a little out. The hive belonged to Mr. Robinson, of Whitegate, who saw the cell opened.—Geo. Stocks, *Winsford, Cheshire.*

[We desire to thank our correspondent for trouble taken in forwarding the queen-cell and worker, which we found as described in his letter. We considered the occurrence to be of so phenomenal a nature that we have requested the chairman of the British Bee-keepers' Association, T. W. Cowan, Esq., of Horsham, to give the queen-cell and its contents a place in his museum of apiarian curiosities, which he has willingly consented to do.]

AGE OF QUEEN WHEN FERTILISED.

During the last few months some doubt has been expressed in the *Bee Journal* as to how old the queen may be before becoming fertilised. The following observations may perhaps be of some use in solving the question. On June the 18th a queen hatched out, and on the 24th in the afternoon (3 p.m.) I found her on the alighting-board. After a short time she flew about in front of the hive, and entered again in fifteen minutes; shortly afterwards she again came out and flew away, this time not returning for twenty minutes, I then noticed, attached to the end of her body, the appendage of a drone, showing that the act of fertilisation had taken place, the queen being six days old. She commenced to lay on the 29th, thus making it eleven days from the time of her hatching out.—Thos. J. Davis, 12 *Palace Road, Bromley, Kent.*

EXTRACTING.—INTRODUCTION OF QUEENS.

I wish to know a little about extracting. Am I obliged to wait till combs are sealed all over before extracting, and how long ought honey to stand in can if extracted before being sealed previous to being bottled off, &c.? I think I have found out a very simple way of introdueing an Italian queen. I first took three combs of hatching brood (no bees), inserted queen and attendants, and placed a large hot-water bottle every seven hours, which kept heat in well, behind the dummy, and kept adding a comb after the first three combs began to hatch, and now I have a fine stock of Italians.—A. Clayton, *Welling, Kent.*

[We would refer our correspondent to Mr. Cowan's paper on 'Ripening Honey,' p. 93.]

PREPARING SKEPS FOR FEEDING.

My bees are in skeps at present, but I shall, as soon as I possibly can, get them into bar-frame hives. I made six last winter from one lent by a very kind lady in our neighbourhood. I only wish she had been in our neighbourhood two years ago, when I lost my first stock through ignorance. But this year I am in a better position, having read up pretty well; and now I must tell you how I top my skeps for feeding. I cut a piece of 1 in. deal 6 in. square, and nail on a rim about about 2 in. or 2½ deep. The rim is then cut to fit the top of the skep roughly; at each corner I drive in a bell-wire staple. I then place it on top of the skep, take a piece of copper wire and pass it underhind of the skep and partly through the straw, then through the staple and twist the ends. This is done at all the four corners. Then I stop it round with clay or putty. I forgot to say in the centre of the 6-in. squares I cut a 2-in. round hole. I then take the cork out of the skep and put on a piece of wood 1 in. thick about 4 in. square, with a hole in the centre for a pickle-bottle to fit in mouth downward on a piece of perforated zinc, which is nailed on one side of a 4-in. piece; the 4-in. piece is fastened on the top of the 6-in. piece with two or three screws. I tie a piece of net over the mouth of the bottle, after putting syrup in, to prevent the syrup being poured out of the bottle when I turn it mouth downward, and I find it a capital plan. I can go in the dark, uncover my stage, and put on the bottles without any trouble, and the same stage would do for a super if the 4-in. piece is unscrewed. I shall, of course, not in future use skeps, but if this is any use to anyone who does I shall be glad.—J. C. Smith, *Dittisham, nr. Totnes.*

SECTION-FRAME WITH TOP BAR.

I have devised a section-frame for use in the body of the hive, which, I think, will prove worth a trial. The

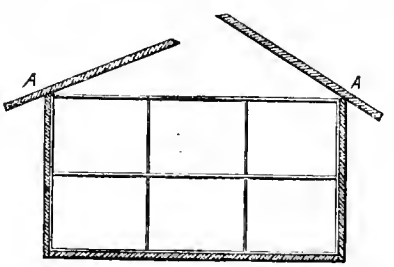


illustration shows the frame filled with sections. The top bar, in two parts, is hinged to the frame-ends at A A. —J. R. W. Hole, *Tarrington, Ledbury.*

PEAT AS A FUEL FOR SMOKERS.

A great many bee-keepers have had trouble in procuring a good article for use in smokers—one that will light easily and last well. It has been so with myself, until, seeing it suggested by A. I. Root that peat was a good thing, I found that it produces volumes of smoke, is easily lit, and keeps alight well if broken in pieces the size of a walnut. The Tramways Companies use peat-moss for bedding, and this peat is used somehow to stick the corners of the bales, and can be had for very little. I use Clarke's smoker, and think it would be an improvement if fuel could be added as needed at the top of fire-box: the latter should be same diameter top and bottom, and with a longer, narrow chimney, which would give a sharper draught on applying the match. What enterprising firm will manufacture one on the cold blast principle with these improvements?—John C. Lambert, *Sunk Island, Hull.*

EASTERN BEES.

As my experience of wintering Cyprian and Syrian bees is rather different from that of the Rev. G. Raynor, I hope you will be able to find room for my experiences of them, wherein they are not 'on all fours' with his, viz. my Syrians partly sealed their stores, though not satisfactorily, so I removed all doubtful frames and gave them sealed ones. The Palestines sealed theirs beautifully, so did Syrian hybrids.

The Syrians and Palestines kept on breeding all winter: in Christmas week the latter had three frames of brood, which, breeding in my case, was the cause of

dysentery. I had also a number of imported Syrian queens at the head of black bees, and they also have been breeding all winter—not much, to be sure, only one patch of brood in each of less than three inches diameter, but still the fact was there. I also reared a Palestine, which was mated with a black drone, and placed her at the head of black bees, and she also has been breeding very heavily. I also had a black queen at the head of mixed Syrian and blacks, and she has been breeding a little. I have two home-bred Syrians hatched, August 9th, which were with blacks, and they have only just begun to lay. I have also two home-bred Syrians, reared in June, 1882, mated with blacks, and they have been quietly hybernating all winter—never a bee to be seen, dead or alive—and in the month of February were as strong as they were at the end of September, with more than 4 lbs. of bees in each hive, and very little food eaten. None of my other stocks had been breeding, and all were packed alike.

In my case the cause of the dysentery was breeding in cold weather, not unsealed food, as I took great care they had none.

Next winter I shall try 'candy' cake to my imported Eastern bees, removing all pollen combs. Home-bred Syrians seem to be sufficiently 'acclimatised,' and ought, therefore, to be at a premium.

One thing I shall take care of, that I have as many black hybrid Syrians as possible, as I am satisfied they are the most yellow bees in the end—gold. Mr. Abbott, in *Journal*, vol. ix., page 127, relates how he obtained upwards of 20*l.* profit from a cross-bred stock of Syrians. The rev. writer speaks of the Syrians having large quantities of pollen; I never could see more than about seven days' stock at once during summer. On one occasion I thought to help a stock with a pollen-bound comb, but in nine days or so afterwards I found they had cleared every bit out and filled it with brood.

I am firmly convinced that when these bees are not smoked and properly understood, they will supersede Italians for temper and every other good point.

I should like the rev. gentleman to say if he has noticed whether any of the Eastern bees are addicted to robbing. Not having any Cyprians yet, I can only speak to the other two, Palestines, which are, I have noticed, slightly inclined that way, not more than ordinary blacks, but no trace in the Syrians.

Speaking of robbing reminds me I have a neighbour with a stock of some kind of cross-breeds which produces immense quantities of bees, but never any surplus of honey; in the autumn they select stocks somewhere and slaughter all the bees, carrying off the stores to winter on. Three years ago they cleared me three out in the autumn. Call this 'the survival of the fittest.' Their owner gets no honey, and last two seasons I took steps to show him they had no food in the hive, and persuaded him to feed them, therefore they remained at home.—JOHN HEWITT, *Sheffield.*

WHAT KIND OF WEATHER MAKES HONEY RISE?

I see it stated by some correspondents in the *Journal* that '*warm nights* are required to make honey rise,' and this is repeated one by one until it seems to have become a fixed belief. I have never been able to verify this teaching, no matter how close I study it, and I beg to differ from it. In 'Echoes,' on page 33, I give my opinion that the yield of honey depends on the amount of *sunshine* we get, and I venture to think the more this is inquired into the more it will be found correct. I have seen in early spring, when nights have been cold—known as 'white frosts'—followed by a bright, hot day, bees have brought honey in abundantly. I have also seen bees *starving* when the fields have been nearly white over with clover, with wind in S.W., nights very close and warm, when the days have been dull and cloudy, although no rain fell. Hot days are generally followed by warm nights. Bees will gather pollen when little or no honey is to be got; but pollen (no matter how useful it may be) is not honey.—JOHN HEWITT, *Sheffield.*

SINGLE-WALLED HIVES.

I have felt interested in the question of single or double-walled bar-frame hives. I think it is a question of great importance to those who, like myself, make their own hives, and whose object is to make their bees pay. I am inclined to think single walls are quite sufficient protection to bees when we consider the way they are wintered. My experience with a single-walled hive made of ½-in. wood, in which the bees did very well last winter, has led me to think that double walls are unnecessary as well as expensive. I use no legs to my hives; my stands of 6 in. high are joined to floor-boards forming one piece. I have an idea they are warmer near the ground than when raised on legs.—EDWD. HOLLIDAY, *Marlborough.*

STINGS.

A few weeks ago I was taking some sections out of a hive and one got broken, and I was putting a lump of it in my mouth when a bee lit on it and stung my tongue. I did not feel alarmed, as I have been pretty fairly inoculated with the poison. I held some mud on the spot for a few minutes, which is very effective. I suffered no ill effects, and my tongue did not swell in the least, except a small lump, size of a pimple. A sting in the throat might have been worse, especially if the sting remained in, but I think would have had little trouble.—J. CROSBIE SMITH, *Passage West, Co. Cork.*

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of May, 1883, amounted (so far as can be ascertained) to 4781*l.* [From a private return sent by the Principal of the Statistical Office, H.M. Customs, to E. H. Bellairs, Christchurch.]

HONEY MARKET.

This question has been the subject of anxious inquiry during the last two or three months, and was again brought forward at the General Meeting. Two difficulties have presented themselves—viz., agreement as to price to be charged for honey sent to the Market, and the provision of a depôt to which it could be sent and from which it could be issued to the purchaser. The latter difficulty has been met by a generous offer on the part of our President, the Baroness Burdett-Coutts, to permit some of the rooms and the employés at the Columbia Market to be used for a time, without expense to the Association. This is a valuable boon, and will, I hope, lead to a solution of the other difficulty; for though the locality is not well fitted for the sale of honey, it will make a very good temporary depôt (subject to some inconvenience to those superintending it), and the expenses are not increased by any consideration of rent.

The price at which producers propose to sell their honey must be brought down to the sum which purchasers will give. I have received many offers to send up honey, and in some cases samples have been sent; but the price asked is more than I find it possible to obtain, and the quotations in the last number of the *Journal* are more near the true amount obtainable in the Market. I am now in negotiation with some large purchasers, who will, I think, agree to take all that is sent up, provided the honey passes examination as to purity and quality, and is delivered to them in a saleable

form, and at a price not exceeding 1*s.* a-pound for extracted, and 1*s.* 4*d.* a-pound for section, which prices I am inclined to think are both fair and remunerative in a plentiful season like the present. At the same time I consider exceptionally good honey will in bad seasons command a higher price.

I am endeavouring to obtain estimates for a cheaper supply of white bottles of 1-lb. and 2-lb. size, and I think that much trouble and expense of carriage may be saved by having the extracted honey sent up to the depôt in bulk, in tin cans, where it can be tested as to quantity and quality, and then be transferred to bottles and delivered out to the large purchasers under something like a guarantee as to purity, when it would easily compete with the so-called honey now occupying the market, at a price apparently much lower.

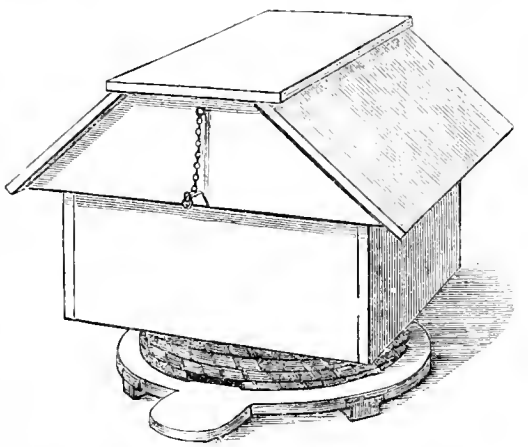
There will be some expenses in connexion with the business, which should, I think, be met by a grant from the County Associations, and I have already received a promise from one of them of 1*l.* for this purpose, and shall be glad to hear of more. A similar grant from each would form a fund enabling the Committee to do justice to the cause without trenching on any other resources.

Before the issue of the 1st August *Journal* the matter will have made further progress, and I shall hope to put more definite plans before the Secretaries of the several Associations.—D. Stewart, *Knockholt, Sevenoaks, July* 12, 1883.

BRITISH BEE-KEEPERS' ASSOCIATION'S MODERN BEE-KEEPING SERIES.*

No. 1.—Skeps.

The moveable-comb hive (fully described in *Modern Bee-keeping*) offers so many advantages over those with fixed combs, that the British Bee-keepers' Association is labouring for its introduction amongst all classes of bee-keepers; but as the straw skep, owing to its cheapness, is still largely used by cottagers in this country, a description will be given of the best form and how the cottager at a very small cost may secure the best results, although he cannot expect to get the same quantity of honey as those who use moveable-comb hives. The hives should be flat-topped, 15 inches diameter, and 7 to 9 inches deep, and and have a hole 3 inches diameter in the crown. A wooden hoop should be worked on to the lower edge of the skep to give it strength. The material of which the hive is made should be thicker than that usually employed by cottagers. The entrance can be cut out of the hoop at the bottom and be 4 inches long by ½ inch high. The floor-board should be sound and flat, and have two strips of wood nailed on underneath, running across the grain to prevent its warping; an alighting-board projection should also be provided. Another plan is to cut the entrance out of the floor-board, but this will add to the cost. The floor-board, projecting about 1½ inches all round the skep, should be bevelled so as to allow any moisture to run off. For the purpose of working supers or sections at the top of the straw skep a case is provided which fits over the hive; this is made 15 inches square inside and 9 inches deep. About 4½ inches down inside is fitted an adapting-board, having a hole to correspond with the hole in the crown of skep. On this is placed a piece of excluder zinc to prevent the queen getting up into the sections. Two pieces of board are fixed inside running parallel with the side and being 13 inches apart; between these are fitted strips of wood ¾ by ⅜ in such a way as to give the bees a clear passage under all the sections which stand in three rows upon these strips. Passages should also be cut so as to allow the bees to pass under any of the sections. A board, within 1½ inches of the end, should be fixed, against which the first row of sections will rest. At the other end a loose board can be placed, and this will keep the sections in position. Such a rack will hold eighteen 1-lb. sections with dividers of tin or wood between each. The space between the sides of rack and the outer casing can be filled in with chaff, and a small chaff-cushion pushed in at the end will keep the sections close together. On the top of the sections should be placed a quilt of calico, and over it a chaff-cushion to keep all snug. When feeding is resorted to, the sections can be removed and the excluder zinc replaced by a piece of zinc with small perforations, on which the bottle containing syrup is inverted. The whole



is covered by a roof, as in illustration, and this is held in its place by pins passing through into the case. The case can be secured either by driving French nails through its sides into the straw skep, or better still with small chains fixed to floor-board. The whole should be placed on a stand about 12 inches high, a cheese-box answering the purpose very well.

Natural Swarming.—As the spring advances, and food begins to be carried into the hive in abundance, the queen lays eggs in increasing numbers, and the population so grows as to make it desirable for the bees to swarm. If the weather be favourable, the bees gorge themselves to their uttermost, and pour out of the hive in a constant stream. Generally they quickly settle—gathering in a cluster on some tree or bush near at hand. As soon as they have fairly settled we may proceed to hive them. If the branch of a tree has been selected, the skep should be held, bottom upwards (the hole in the crown having been previously stopped up), beneath the swarm, while a sudden shake of the branch immediately above will dislodge the bees, and they will fall into the skep in a mass. The skep should then be gently turned over and placed upon the floor-board on the ground, placing a stone between the hive and floor-board to allow the bees to get in more easily. If the queen has been secured the bees will quickly suspend themselves from the roof, while the remainder on the wing will soon join them. The hive may then be placed on its permanent stand. If we fail in getting the queen the bees will leave the hive, and the operation will have to be repeated. If bees choose awkward places for settling sometimes it is best to use a goosewing to brush them into the skep, while often we may secure them by fixing the hive over them and driving them up with smoke. (For further details see *Modern Bee-keeping*, pp. 30–33.) Do not in any case wash the hive with anything, sugar, beer, treacle, are all alike—worse than useless.

After Swarms or Casts.—Eight days after a swarm leaves a hive generally one of the queens hatches out, and on the tenth day she leaves the hive with as many of the young bees as choose to follow. Often two, and sometimes as many as seven or eight queens which have left their cells at the same time will leave with one cast of bees. If these be hived, however, all the queens but

* Published for the Association by J. Huckle, King's Langley, Herts. Price 1*d.*

one will be destroyed. Casts should not be encouraged, as they are seldom profitable, but should be returned to the original hive.

Driving.—Driving is the art of compelling bees to leave their hive at the will of their master, and is often necessary with skeps to make artificial swarms. The hive to be driven should be removed from its stand to some quiet spot, and an empty skep put in its place. Blow a little smoke into the hive, which will send the bees to their honey to fill themselves. Lift the skep, and, turning it upside down, place it upon the table, putting an empty skep over it, and bringing the edges of them together at the point towards which the combs run. Push a skewer through the edge of the empty skep into the lower hive so as to form a sort of hinge, while two strips of wood with nails in their ends fixed into the hive, as shown in *Modern Bee-keeping*, p. 36, will give greater freedom for the hands. Without delay, commence rapping on the side of the inverted skep with your open hands. The blows must be smart enough to jar the combs, but not sufficiently heavy to break them from their attachments. After a few raps, and generally within a minute or two, the bees will begin to run up. A sharp watch should be kept for the queen, and after a little experience she will rarely pass without being noticed. In chilly weather, bees will be driven much more easily, if, after giving them the first puff of smoke, we lift the hive and pour among the combs about a gill of warm, thin syrup, afterwards allowing them about a quarter of an hour for licking it up. Driving is not advisable in the case of swarms, as their combs being tender would be broken by the necessary blows. This kind of driving is called 'open driving,' but the timid may prefer 'close driving.' In this the hive is treated as before, but the upper hive is so placed that the rims of both meet and correspond, while round the two a jack-towel or strip of calico is fastened to prevent the escape of any bees.

Artificial Swarming.—To avoid the trouble of watching for swarms, methods of swarming artificially are now used by all advanced bee-keepers. Artificial swarming cannot, of course, be performed so readily or neatly with skeps as with frame-hives. If we have but a single skep to swarm it should not be done unless the stock is very strong, and apparently near the condition in which it would be likely to swarm if left to itself. Two empty skeps will be required—one to occupy the old stand and receive the bees returning from the fields; the other to receive the driven swarm to be made, as explained under 'Driving.' During driving keep a sharp look-out for the queen, and if she is seen to go up drive out about half the bees in the hive. Place the swarms and stock on opposite sides of the old stand, with a space of about 3 feet between them, so that each hive should have an equal share of bees returning from the fields. If one should appear too weak, it will be strengthened by drawing it nearer to the old stand.

(To be continued.)

Review.

THE BEE-KEEPERS' HANDY BOOK; or Twenty-two Years' Experience in Queen-rearing. By Henry Alley, Wenham, Mass. (1883.)—All practical bee-keepers are ready to admit the importance of 'Queen-rearing' as a branch of apiculture. Mr. Alley, it appears, has been engaged in queen-rearing for upwards of twenty-two years, and is acknowledged by American apiarists to have produced and reared more queens than any other breeder. A series of experiments conducted through so many years by one who has made the subject a speciality, and which, according to Mr. Alley, have been crowned by a success which has far surpassed his most sanguine expectations, should be warmly welcomed and closely studied by all bee-keepers. In his introductory remarks, Mr. Alley states: 'The present and future interests of apiculture demand a more thorough and practical method of rearing queens, and I shall endeavour in this work to give my readers such information as shall tend to give a new impetus to this branch of bee-keeping, and also aid, if possible, in doing away with the cheap and worthless queens produced under the lamp nursery system; and to offer to the bee-keeping public, for their careful consideration and adoption, a thorough, practical, and scientific method of queen-rearing, which is the result of many long years of practical experience, and much hard study. In order to become a successful instructor one must first attain a complete knowledge of the subject to be taught, and unless it has been thoroughly and fully mastered in all its details, failures only can result. In presenting this work to the bee-keeping fraternity, I do not wish to assume the position of teacher, but rather to place before its readers in as plain and practical a manner as possible my method of rearing queens, leaving to their judgment the careful study, and candid criticism of its contents, feeling assured of a favourable decision regarding its merits and value; knowing that if its instructions are carefully studied in all their details, and put to a practical test, the result will be successful. By careful attention to all the rules laid down herein, I hope better queens will be produced, a matter of great importance to the bee-keeper whether he keeps bees for pleasure or profit; and of vastly more importance to the bee-master who follows it as a vocation and depends upon the same for a living.'

Mr. Alley then proceeds to give details as to his new mode of rearing queens, illustrating it with engravings. By his method queen-rearing is well-nigh raised to a certainty. Nothing is left to probabilities, but the cells are built just in the places and in the numbers described by the bee-master, and with such regularity that the danger of removing them is reduced to a minimum. Besides giving his readers the benefit of his experience in queen-rearing, Mr. Alley introduces several chapters bearing on other important branches in bee-keeping; in these we have his views on Transferring Bees; Spring and Fall Feeding; Wintering; Keeping Bees for Pleasure or Profit; Best Location of an Apiary, &c.

Besides Mr. Alley's method of queen-rearing, the work contains an essay on the best method of managing the apiary in order to obtain the largest amount of surplus honey, including preparing for market and marketing the same, by George W. House, of Fayetteville, N. Y. This essay presents many new and original ideas; and as Mr. House seldom fails of securing a good honey harvest, his experience is of the highest value.

We have also an essay on the new races of bees by Silas M. Locke, of Salem, one of the assistants in the apiary of Mr. D. A. Jones, of Beeston, Ontario.

The book will prove a valuable addition to those works for which we acknowledge our indebtedness to our trans-Atlantic brethren, and should be found in the hands of all apiarians. The work is a handsome 8vo. volume, carefully printed and copiously illustrated. Our only regret is that, being so valuable and practical, and so varied in its contents, it should have been sent forth without being accompanied with an index; we would suggest that this oversight should be supplied in some future edition.

A CURIOUS CALCULATION.—Each head of clover contains about 60 distinct flower tubes, each of which contains a portion of sugar not exceeding the 500th part of a grain. The proboscis of the bee must therefore be inserted into 500 clover tubes before one grain of sugar can be obtained. There are 7000 grains in a pound, and as honey contains three-fourths of its weight of dry sugar, each pound of honey represents 2,500,000 clover tubes sucked by bees.

Echoes from the Hives.

Ottery St. Mary.—The cover of one of my hives not being very tight-fitting, during the last month a queen-wasp selected the top of the quilt to start a colony. The nest grows larger very slowly, but when it becomes troublesome I shall remove it.—W. J. G.

Sheffield.—On June 15th rain came down in earnest, just in time to save crops from ruin, since which date the wind has been principally in the south-west, with rain more or less nearly every day, with a good sprinkling of thunder-storms. White clover is well out, but very little honey is being stored. Breeding is being carried on vigorously, the warm, moist weather being particularly favourable for it.—JOHN HEWITT.

North Leicestershire.—With one or two days' exception, bees have been unwontedly busy since the 24th ult. Supplies from beans, clover, and limes are filling supers beautifully, and another week or so of fine weather will secure a capital honey harvest.—E. B.

Cheshire.—Winsford and district is destitute of fruit trees, and its only honey harvest is white clover. The harvest is only just begun, but if this weather continues there will be a glorious ingathering. Swarms have not been so plentiful and appear very backward. Many have proved queenless, and I trust it will be a lesson to them to have younger queens in future, myself included. Carniolans doing pretty well, but there are black bees doing better.—GEO. STOCKS.

Birmingham.—For a fortnight or three weeks previous to the 15th, there was a good flow of honey and strong stocks rose rapidly in weight. Since that date the weather has been unfavourable, and bees have been doing little in the way of honey-gathering. The chances of full supers look small at present. I had an opportunity of noting the importance of keeping stocks strong while examining the apiary of a gentleman in North Warwickshire. Two strong stocks had from 75 to 30 lbs. of sealed honey. Of three weak ones, two did not contain between them 1 lb., and in one there was not a trace. Have had varied experience in introdneing queens during this month. No. 1, a Ligurian, managed to get out of her cage just after she was put in, but the bees accepted her, and when I opened the hive next morning I found she had already began to lay. No. 2, also a Ligurian, I had to cage four times before the bees would accept her, and each time I let her loose had some difficulty in saving her. No. 3 was introduced by Simmins' method, but I lost a great many bees by it. No. 4 was caged in the middle of the day, and on looking in the evening I found that in pressing the cage between the combs, the honey was squeezed out and the poor queen was in a sad plight. With some difficulty I got her out and gave her at once to the bees, who immediately began to clean and dry her. In half an hour she was quite safe and comfortable.—GEO. S. JOHN QUINTON, *June 27th*, 1883.

Leslie, Fife.—The first three weeks of June were very favourable for bees, and those who had supers on found them filling rapidly, but the weather broke in the fourth week, and since then till now heavy rains and unfavourable weather generally have stopped all progress, and hives are no heavier now than they were three weeks since. With good sunny weather again something may yet be done, but we cannot now make up in full the loss of the past three weeks, and bee-keepers here are somewhat despondent, seeing the past two years were so very unremunerative ones. Rainfall for June 1st to 15th, nothing; 15th to 22nd, 0·2; 23rd to 30th, 2·6; July 1st to 7th, 1·5 inch: 360 feet above sea-level.—J. L.

Isle of Man, Douglas, July 7.—The weather during May and up to the 18th of June was very fine and warm, the unfavourable days being comparatively few. Bees were, however, backward on account of the severe spring, and not therefore able to take full advantage of the honey glut. The first swarm I heard of was on May 22nd; my first was on the 26th of the month. It came from a skep of not near 900 cubic inches. This same stock consumed but 7 lbs. of honey during five and a half of the winter months. The weather from the 19th to the end of June was very unsettled. Bee-keeping in the island is in a very neglected state, which is to be much regretted, considering that honey-yielding plants abound all over it, more especially heather, which is found on nearly all the numerous mountains in immense quantities.—IONA.

Passage West, Co. Cork.—From the 7th June to the 14th the weather was all that bee-keepers could desire, honey coming in freely and honey in sections being had from bar-frames, some districts being more favourable than others. On the 15th June a change to March weather took place, and continued so to the 21st June, when heavy and almost unceasing rain has continued to the present, 8th July, and the hopes of getting a crop of honey almost gone, unless the weather changes before the white clover goes out of blossom, and there is a grand crop of this this year, but the bees cannot avail themselves of it. I am afraid that in this uncertain and rainy country bee-keeping could never be tried on anything like a 'bee-farming' scale, as the risk is too great, so that keeping more than a limited number of hives is unadvisable. Unless a change takes place, the honey yield will not be much to boast about. Bee-keeping must be, more or less, a hobby in Ireland, and it may be a paying one if we have the weather.—J. CROSBIE SMITH.

Queries and Replies.

QUERY NO. 644.—1. *Preservation of Pollen.*—Can you inform me how to keep pollen from spoiling? I find that pollen which is left in the combs during the winter turns mouldy, this is, I suppose, owing to dampness. If they were kept in a very dry place would the pollen not become too dry and hard, so as to render it useless? 2. *The First Writers on Bees.*—Who were the first who wrote on bees, and dates thereof? 3. *Columella's Hives, and Management.*—What kind of hives were used in the time of Columella, 1800 years ago, and what was the general mode of management? Were the bees destroyed to obtain the honey; if not, how was it obtained? 4. *Suffocation of Bees.*—When did the system of suffocation first come into use? 5. *Inventor of the First Frame-hive.*—When was the first frame-hive used, and who invented it?—J. PEACOCK, *Witton Gilbert, Durham.*

REPLY TO QUERY NO. 644.—1. Pollen, when dried up or mouldy, is rendered partially or entirely useless. When in this condition it is removed by the bees in spring, when the cells are required for other uses. Whatever stores of old pollen may be in the cells, bees will, if they have the opportunity, gather fresh. Pollen is excellently preserved under honey, and therefore the covering of the cells with it will protect the pollen from getting spoilt. 2. Aristotle was the first writer on bees, 330 B.C. Three hundred years later (35 B.C.) Virgil wrote his fourth Georgic; then Columella (50 A.D.) his *De Re Rustica*, quoting in the course of his work many authors whose works are not now extant; after him, the elder Pliny. Fourteen hundred years then passed away without any notable contribution to the history of bee-keeping. 3. Columella wisely says, 'Bee-hives must be fabricated according to the condition and circumstances of the country;' and then proceeds to describe various hives made of cork-bark, 'fennel giants,' willows woven together, wood of a tree made hollow or sawn into boards, potters' earth, and those 'made of

dung or built of brick.' The general mode of management in his time was not very dissimilar to that which now obtains amongst cottagers of the present day. In Columella's time the honey was obtained by a process called 'castration,' or exsection, that is, by cutting out a part of the combs, the remainder being left for the bees' provision; the bees being forced during the process, by means of smoke, from the back part of the hive to the front. This was done twice in the year. Galbanum or dry ox-dung was in early times employed for smoking the bees. This method of cutting out combs twice in the year is mentioned by Aristotle (*Hist. Anim.* ix. 40) and by Virgil (*Georg.* iv. 228–237); and Thomas Hyll, writing in 1568, reproduces the method mentioned by Columella almost word for word. Dr. Dzierzon also recommends the same process. 4. Suffocation is described with much minuteness by Dr. Butler (1609) in his *Feminine Monarchie:* but we are inclined to think that the practice was in operation long prior to his time. 5. In 1799 Huber invented the first frame-hive, the frames opening like the leaves of a book. In 1834 Major Munn put the bar-frames into a box, the same as the modern bar-frame hives. This hive was improved (?) in 1851, and a hive was produced the very facsimile in its exterior of the Anglo-Cyprian Hive (see engraving in Munn's 'Bevan' (Plate I.), and in Prof. Cook's *Manual*, p. 118, tenth edition). In 1851–2 Langstroth invented the modern bar-frame hive, which has quite revolutionised bee-keeping, and thereby conferred a benefit on bee-culture which cannot be over-estimated. Woodbury's, Carr's, Cowan's, Abbott's, Cheshire's, &c., bar-frame hives are all modifications of the Langstroth bar-frame hive.

Query No. 645.—*Ants in Frame-hives.*—Almost the whole of my hives are this summer infested with small black ants, and numbers of their eggs are lying in the rebates under the frame-ends. Do they do any harm; and if so, what is the best way of getting rid of them? I have tried Keating's insect-destroying powder, but without success.—C. J. Myers, *Dunningwell, Broughton-in-Furness.*

Reply to Query No. 645.—Ants cluster about hives for warmth; they do not molest, nor are they molested by, the bees. They can be destroyed by the use of any of the fly-poisons which are sold (taking care that the bees are prevented having access to them), or by sprinkling them with salt.

Query No. 646.—*Inducing Bees to enter Supers.*—I have two common bar-frame hives, and put a case of American section supers on the top; but the bees often will not build in the supers, but swarm instead. I have tried cutting the queen-cells off, but that only delays their swarming about a week. Can anything be done to induce them to build in the supers? I have never put comb-foundation in, only drawn a line of wax on the top. —B. Russell, *Rainham, Essex.*

Reply to Query No. 646.—We would desire to refer you to our reply to B. W. Gregory (647). Besides the suggestion therein contained, we might point out that confinement or removal of the queen during the honey-gathering will give, as a rule, fourteen days' full work before a swarm could come forth; and if about that time all the queen-cells save one were cut out swarming would be further delayed, if not prevented. To induce bees to ascend the supers, advantage should be taken of their known attachment to brood. If a comb or two of brood were cut up and placed in the sections, they might be removed after the bees had taken possession and others inserted.

Query No. 647.—*Swarming from Supers.*—On June 13th I put eighteen 1-lb. sections on a strong stock that I thought ready for supering. Bees seemed loth to take to them, but did so about the 21st, and worked well in them till the 25th, when they sent out a fine swarm. I at once took off the crate of supers, took out four frames full of brood giving empty ones in exchange, shot the swarm back again, without removing the queen, and replaced the crate of sections. All went well till July 6th, twelve days later, when they sent out another swarm or cast not as large as first. These I shot on to a cloth, took away the queen, and left them to find their way home, which they speedily did. Still, they have not completed the sections at the time I am writing. Ought I to have given more room by placing another crate of sections on the top?—B. W. Gregory, *Hatfield, July* 9.

Reply to Query No. 647.—It is a difficulty the bee-keeper has to contend with when the swarming fever seizes on the bees. The prudent bee-keeper will endeavour to be in advance of all possible requirements of bees. The hive should be kept cool and well ventilated, and ample room should be given both in the hives and by supers. In the case before us swarming would have been retarded, and possibly prevented, if, instead of four combs, *all* the combs containing brood had been taken away, substituting for them either empty combs or comb-foundation.

Since writing the above, we have had a further communication from Mr. Gregory, informing us that the above-mentioned hive swarmed again on the 11th inst. Would he be pleased to refer to our reply to B. Russell (646), and also to Replies to Queries 657 (2) and 658 (2)?

Query No. 648.—1. *Fertilisation of Queen in Confinement.*—Do you think it will be practical to get queen fertilised in confinement, as mentioned by American correspondent in your *Journal?* Would it be necessary to cage queen after fertilisation? 2. *Syrup with Eggs.*—How long will syrup keep that has had eggs added?—F. Eccles, *Chevet Road, near Wakefield.*

Reply to Query No. 648.—1. Many attempts have been made to obtain fertilisation of queens in confinement, of which you may read records in earlier volumes of *B. B. Journal.* It is generally acknowledged, however, to be impossible. As to controlled fertilisation, read the Rev. G. Raynor's paper on the subject, published by the B. B. K. A., price 3*d.* 2. The time syrup with eggs added will keep depends greatly upon the weather. The fresher it is used the better (see reply to C. H. 655).

Query No. 649.—*Drones.*—In one of my old straw-skeps, which ought to be nearly swarming, there is a great number of drones loitering about the entrance. In my opinion they are hindering the working bees. The workers seem to be few in number. Would it be advisable to kill some of the drones, and when and how to do so?—Ionian.

Reply to Query No. 649.—It is rather late in the season to proportionate the numbers of the drones and the worker-bees. The time is drawing nigh when the latter will take this matter in hand. If, however, you desire to do it, the superfluous drones can be captured by means of a drone-trap (Aston's).

Query No. 650.—*Skeps.*—I have just purchased two swarms of bees about three weeks ago. Should you advise me to let them stay as they are, in straw-skeps thatched? I meant for them to stay through the winter. This is my first attempt. Please tell me what I had better do.—E. C. Lander, *Mere, Bath.*

Reply to Query No. 650.—This being your first attempt, we would suggest that, now the season has so far advanced, you should retain the bees in the skeps, but that you should look forward to transfer them to bar-frames next year. This will give you the opportunity of further studying the management of bees, and of preparing the necessary hives. In the meantime read the pamphlet 'Skeps' (price 1*d.*), which will furnish you with a large amount of useful knowledge respecting the management of bees in skeps.

Query No. 651.—1. *Crooked Combs.*—One of my stocks swarmed on the 3rd inst.; again on the 17th; on

the 18th it turned out four queens. On the 25th I found a queen and a few bees on the ground close to the hive. I put her in, and think she was all right, except she could not fly. On the 26th, which was a wet day, I found her dead on the ground with a lot of bees. How am I to ascertain there is a queen in the hive, as I cannot lift frames out, as combs run crossways? 2. *Eggs in Comb.*—Will there be any eggs they can make a queen off? 3. *Fastening Combs.*—How shall I fasten combs containing brood and honey on to frames?—J. A. P.

Reply to Query No. 651.—1. The entire number of crooked frames should be lifted bodily out of the hive, and the bees shaken on to a white cloth, and the bees examined till the queen is discovered. 2. Having lifted the frames out of the hive, you will be able to assure yourself by ocular proof whether there are eggs for the bees to make a queen of. 3. Straighten the combs by pressure; have two pieces of tape long enough to tie round the frames at some distance apart. Place the frame about the comb, the top of the comb touching the frame, and tie the tapes around it. Raise the comb to an upright position, and suspend it in the hive. The bees will do the rest.

Query No. 652.—1. *Bee-trap.*—Can I entrap a queen-bee through a No. 43 bee-trap in Neighbour's catalogue, as I want to catch a stock from a house-top? and shall I be doing right by placing the trap before the hole where they come out, and place the hive next the trap, so that they will have to go through it before they can get out? 2. *Supering.*—Will it be advisable to super a June swarm? They are getting strong and well, filling the combs with honey.—F. E., *Newhall, Burton-on-Trent.*

Reply to Query No. 652.—1. Mr. Neighbour's 43 bee-trap is designed for the removal of bees from supers, and would not be of any service in removing a stock from a house-roof. The colony must be laid open by the removal of the tiles, and the combs, brood, bees, and queen must be taken away. 2. If the hive be full of bees, weather fine, and income of honey abundant, supers may be put on.

Query No. 653.—1. *Foundation for Ligurians.*—Is it necessary to procure a particular size of foundation for Ligurians, as they build larger cells than the black bees? Does the ordinary long-holed excluder-zinc permit the passage of Ligurians? 2. *Frames across Hive.*—Which way of the hive should frames run? 3. *Fixing Foundation.*—Not having the back numbers of the *Journal*, I cannot understand how to fix foundation in sections from the drawing in June 15th number. Can you give directions again?—Hugh Oveny, *Holburn Villa, Lansdowne Road, Didsbury, near Manchester.*

Reply to Query No. 653.—1. The ordinary size of foundation is sufficient for Ligurians, and the ordinary long-holed excluder-zinc will permit the passage of the Ligurians. There is no such perceptible difference between the size of blacks and Ligurians. 2. Those who have given special attention to this matter prefer the frames running parallel to the entrance. The subject has been frequently ventilated in the *Journal*. 3. To fix foundation in sections, consult *Modern Bee-keeping*, pp. 61-65, or Cowan's *Guide-Book*.

Query No. 654.—1. *Unfertilised Queens.*—Do unfertilised queens ever lead off swarms? 2. *Painting the Thorax of the Queen.*—Is it safe to paint the thorax of the queen? If so, what colour is best? 3. *Removing Artificial Swarms.*—A natural swarm may, we know, be removed to a new position with perfect safety, even though contiguous to the old stand. Is the same true of an *artificial* swarm? I am inclined to think not.—H. J. S.

Reply to Query No. 654.—1. The first swarm is led off by the queen-mother; the second and after swarms by virgin queens. 2. Touching the thorax with a slight patch of colour will not injuriously affect the queen. Red colour is the most conspicuous. 3. An artificial swarm may be removed with as much safety as a natural one.

Query No. 655.—*Quantity of Food.*—1. Referring to the interesting articles in late numbers of the *Journal*, 'What shall I feed my bees with?' it would be very helpful to me, and probably to many others, to be informed, as nearly as practical experience can, the average quantity of such foods that may be given each night for stimulating purposes without fear of the same being stored, and how long the foods described will keep good, as on that must depend the quantity to be made at one time? 2. Would it be safe, later on in the summer, say after such a check as bees have now had by the cold change in the weather and the deluge of rain, to again stimulate them to greater activity in breeding by administering either of above foods in *very* small quantities? But here again one fears more than at an earlier time that it might be stored in the combs.—C. H., *Devon.*

Reply to Query No. 655.—1. The quantity of the foods you mention which may safely be given varies greatly according to the strength of the stock and other circumstances. You must constantly watch, and if you find any storage reduce or discontinue the supply until consumed. The fresher such foods are given the better, as anything approaching to fermentation is most injurious. 2. It is quite unnecessary to give nitrogenous foods at times when abundance of pollen is to be obtained naturally. Plain syrup regularly given in small quantities you will find quite stimulative enough in the late summer and autumn.

Query No. 656.—*Wax-moth.*—I have just discovered wax-moth in one of my bar-frame hives, and that in consequence the stock is rapidly vanishing. What shall I do? I fear if I smoke the hive with sulphur I shall kill the bees as well as the moth. I thought of sweeping the bees into a new hive, but fear I may bring the moths too. —G. H. Chilcott.

Reply to Query No. 656.—Strong colonies are not infested with wax-moths. If your colony is in danger of being victimised by them, transfer the bees and the combs that have not been attacked to another hive, and sulphur the old one. Build up the weakened colony by giving it frames of brood, and if considered necessary a good queen, and then there will be hopes of the stock re-establishing itself. Caution must be exercised in making use of the infested combs, lest there should be any of the pupæ still existing in them.

Query No. 657.—1. *Drone-comb.*—About three weeks ago I made an artificial swarm, and in lieu of the frame taken away from the stock, I placed a frame with only a narrow strip of foundation at the side of the hive. I now find that this frame is filled with drone-comb and brood. Under these circumstances, what should be done? 2. *Number of Frames.*—At this time of the year, what number of frames should be given to a strong stock which is supered? 3. *Quantity of Stores.*—What quantity of stores should a hive contain for wintering, and in what manner is it ascertained that the hive possesses the necessary supply?—A. A. S., *Southampton, July 8.*

Reply to Query No. 657.—1. When bees are deprived of their queen, or when they possess an unfertilised queen, they build drone-comb only. When you removed the frame and queen, you would have done well to close up the combs, using a division-board, until the young queen was hatched and fertilised, when foundation should have been given, and it would have been quickly drawn out into worker-comb. Leave the comb of drone-brood to hatch out, when it will be filled with honey and will do well for store. If you had *filled* the frame with worker foundation, worker-comb would have been built. 2. A strong stock, working well—say, in a 30-lb. super—would require at least twelve standard frames in the body of the hive for brood-rearing. If less be allowed, swarms

will issue, and your super will be left unfinished. 3. About 20 lbs. of *sealed* stores will carry a good stock through the winter. In frame-hives the quantity is easily ascertained by inspection. In the case of skeps, and all fixed-comb hives, weighing is the only test, allowance being made for weight of bees and pollen-clogged old combs.

QUERY No. 658.—*Filling Sections with Foundation.*—1. In all the supers supplied to me, the model sections have only a very small triangular piece of foundation. In the frames most of the books seem to recommend filling almost the entire section with brood-foundation. Is there any reason for this difference—any reason why the sections should not have nearly full allowances of foundation, as much as the frames? 2. *Bees deserting Supers.*—When supers are not worked, or only partially worked, ought they to be *left on* in hopes of the bees afterwards thinking better of it; or ought they to be removed when it is plain they are not working them? Some of mine were being beautifully worked out, three or four completed, and the rest in full work, and I was in the pride of going to show my first crate of sections, when suddenly the whole collapsed! the swarm swarmed (it was an artificial swarm just four weeks old), and the whole building was deserted. My crate of sections has never since been completed. 3. *Second Swarms.*—Not only did this artificial swarm thus itself swarm, deserting the supers; but in four days it swarmed again—a cast (which I returned). Is not a second swarm within four days a very unusual thing? I had understood that a cast never came sooner than nine days after a first swarm. 4. *Quilt.*—The quilt from which the enclosed is cut was sent me lately by a very excellent firm, as one of the most recent and best kinds for summer. I should be glad to have your opinion of it. It seems to be quite air-tight, and when I remove it it is often quite wet below, almost as if taken out of a river. It is said to be an American invention. 5. *Want of Room in Hive.*—Can you suggest any explanation of the following. The last few days have been here exceedingly wet and cold, and in the evenings not a single bee is seen at any of the entrances, except in one hive of Ligurians. Here every evening an immense party gather idly, like 'corner boys,' on the flight-board. They lie on the wet board rolled up in masses and balls, so that I have sometimes thought they were dead. To-night I blew some smoke on the mass, about eight o'clock, when they slowly unrolled themselves and all walked into the hive. But in half an hour I found them beginning the same perplexing game again. The hive otherwise is a prosperous one, full of bees, brood, and honey.—S. L. B., *Trory Parsonage, Ballycassidy, 6th July*, 1883.

REPLY TO QUERY No. 658.—1. It is best in all cases to fill the sections with worker-foundation, because the bees accept them more readily, and work them out more speedily. Room for the passage of bees should be left at the sides and bottom. The foundation used should be as thin and light as possible. When there is no drone-comb in the hive, if the sections are only partially filled with foundations, the bees will build drone-comb, and the queen will enter and deposit eggs, thus spoiling the super. 2. After once taking possession of a super, the bees will only desert it on swarming. If you had given them more room, by taking out several frames of honey and brood from below, giving them to weak stocks, and supplying their place with empty worker-comb or foundation, the bees would have remained at home and finished the super. When the bees swarmed a frame or two of brood should have been removed from the parent hive and given to the swarm, the remaining frames being filled with worker-foundation, and the super transferred to the swarm, when it would have been completed immediately, weather permitting. 3. A second swarm often issues three or four days after the first. We suspect that your hives are too small. Swarms of about 4 lbs. in weight, when issuing early in the season, should never be stinted for room, otherwise undesirable swarming, in a good season, is sure to follow. To such swarms we always give a hive of at least twelve standard frames. 4. The enamelled cloth, of which you enclose a pattern, is extensively used in America. We have not tried it. A piece of 'bed-tick,' 'duck,' or calico, with quilt, or felt, placed over it, answers every purpose. If used at all, we should place the enamelled cloth *over* the felt, not under. 5. The sole cause of your Italian bees clustering outside the hive is want of room. The whole population being at home in the evening, an exit is necessary to cool the hive. Have you supplied them with a super? If so, remove it and take away from the outside of the hive below two or three frames of comb, which you will probably find to be sealed honey; move the remaining combs to each side, creating a space in the centre, and filling it up with worker-foundation, and replace the super. The lazy bees will soon disappear.

QUERY No. 659.—1. *Limes.*—There are some lime-trees within a hundred yards of my hives, and at the present time they are covered with flowers and scent the air. Although so close, the bees do not appear to work upon them, and the other day I carefully looked for a honey-bee, but without seeing one. Field-bees are very busy upon them. It is not because my bees have any attraction nearer, except a shrub which grows luxuriously in the garden. The name I do not know, but the way the bees work upon it is quite astonishing. From early morning till late in the evening, and just after heavy rains, they are to be found on it in great numbers. I enclose a piece. By the by, are bees generally more difficult to manage in hot weather? About this part they seemed to be very bad-tempered during the warm days of last week. 2. *Foundation.*—Do you recommend the use of sheets of thin foundation to fill the sections, or only a narrow piece? I have tried both, and eaten the honey, and decidedly prefer the latter. There is most distinctly the thick midrib; in fact, I noticed that the comb was built *on to* the foundation, instead of the foundation being drawn out to form the comb. 3. *Consumption of Honey.*—About what quantity of honey is consumed per day by the young brood in a strong hive at this time of the year? I have a large hive very full of bees, but without any brood, and it appears to me that as these bees can devote all their time to honey-gathering, and do not require any food for brood, I ought to get a large harvest from them. Now that the B. B. K. A. has turned its attention to the straw-skeps, I rather wonder no suggestion has been made to use foundation in them. I have done so by getting a circular piece of inch pine, rather smaller in diameter than the inside of the skep, cutting some saw kerfs in it 1½ in. apart, and fixing the sheets of foundation in these with a little melted wax. The wood can then be fixed to the interior of the crown of the skep, and the foundation will be sufficiently firm to bear the weight of the bees. It will be possible to fix the foundation to the crown-board where the skep has one, and it is moveable. —JAMES HEDDING, *Sawston, Cambridge.*

REPLY TO QUERY No. 659.—1. Limes are so universally visited by bees that we suspect you are mistaken. If the lower branches of the trees are in shade, the bees will work upon the higher parts, and on lofty trees it is not an easy matter to see them. If they really neglect the limes, it is quite certain they have other forage near which they prefer. Are there no fields of white clover, trefoil, or beans within reach? The shrub, a portion of which you enclosed, is the Snowberry (*Symphoricarpus racemosus*), a very good bee-shrub, and one that should be more extensively cultivated. Bees in sunshiny weather have their work to do, and possibly they may be more testy when interfered with. 2. Our practice is to fill the sections with foundation, leaving merely passage-room for a bee at the bottom and on the sides. The

proper foundation for sections is so thin that we defy any one to distinguish between those sections built upon it and those built entirely without. The transparency is equal, and a long needle, pin, or piece of thin wire will pass through either without meeting resistance. We suspect that you have been using foundation of too much substance. 3. It is impossible to say, but the consumption is considerable. A strong hive ought to increase its stores by six or eight pounds per day when honey comes in freely. The fact of your hive having no brood at this season points to loss of queen, or having swarmed to an unfertilised one. In the back numbers of the *Bee Journal* you will find directions for fixing foundation in skeps. Mr. Abbott has written at large on this subject.

NOTICES TO CORRESPONDENTS & INQUIRERS.

John W. Townsend.—*Triple Hives.*—Hives with three compartments are more used in Germany than in this country (see Dzierzon's *Rational Bee-keeping*, p. 129): there are some advantages in the junction. 2. *Queen-raiser.*—It would not be prudent in our position to give the name of a queen-raiser in Switzerland; please apply to an importer. 3. *Old Comb.*—Frames of comb, even if several years old, if free from moth, should be utilised for swarms. Bees winter better, and are more free from dysentery, in old combs than in new. If there is any suspicion of disease in them, let them be melted at once.

Young Beginner.—1. *Stings.*—Drones have no sting. The queen possesses a sting, but she never uses it except when engaged in mortal combat with a rival queen. 2. *Full Foundation-sheets.*—If the foundation is wired, or of such a strength that it is absolutely firm, frames should be full. 3. *Queens from Casts.*—If such queens become fertilised they are of service, if you require them. 4. *Distance of Hives from one Another.*—Hives should not be too crowded, a distance of at least three feet should occur between them. 5. *Position of Hive.*—It is immaterial in which direction the entrance of a hive is; yet to make them face the south or east is preferable; but we have no preference to either of these two.

G. R. Thomas, *Sparton.*—*Transferring.*—As soon as the honey harvest is over in your district, it would be desirable that your bees should be transferred from straw-skeps to bar-frame hives. When transferred, let the bees be fed till they have sufficient sealed stores for wintering upon.

W. J. K.—1. It would appear that you have given your bees a poisonous dose of salicylic acid, or something foreign to Mr. Cowan's receipt. It seems unnatural that a swarm that has once taken possession of a hive should refuse food properly made. The hundreds of dead bees could scarcely have been robbers, as robbing bees would not have been contented with half a pint of syrup or less a-day. Try some fresh syrup, and do not pour it over the combs.—2. A queen-excluder would not do permanently as a separator, as the combs could be easily joined through the spaces.

G. R., *Diss.*—*Genuine Honey.*—If syrup is used to finish boxes of sections late in the season, it would be a fraud to say that they contained genuine honey.

Cambridge.—*The best Extractor.*—For small apiaries Mr. Abbott's 'Little Wonder' is all that could be desired; for larger, we recommend Mr. Cowan's 'Amateur,' or his 'Commercial,' which is the same as the 'Amateur' with the addition of a strainer.

Geo. Stocks, *Winsford, Cheshire.*—*Delay in receiving Certificate.*—Be pleased to make another application for the awarded medal; we cannot conceive that the gentlemen whose names you have mentioned in your letter would have withheld it without having some good and sufficient reason for so doing.

Perranaworthal, *Cornwall.*—*Fertile Worker.*—Your swarm, being a second one, would have been headed by a young queen not yet fertilised, and liable to many accidents. The description given of the usurper indicates a 'fertile worker,' especially when taken in conjunction with the irregularity in ovipositing, and, in any event, it will be best to introduce a good queen to the hive in her place. The probability is that the queen, after being fertilised, produced eggs, which have since hatched out, and was subsequently injured and lost. You should have no difficulty in distinguishing the young workers from drones, the differences in the multiple eyes, and in other respects, being so marked.

Olfactory Organs of Bees and other Insects.—M. G. Hauser asserts that the sense of smell in insects is seated in the antennæ. Glass rods moistened with oil of turpentine or acetic acid were presented to a great number of insects, which showed their perception of these strong-smelling substances, by moving their antennæ and turning sharply round. But when their antennæ had been previously removed, the same insects gave no signs of perception, even when they were placed quite close to the turpentine or acetic acid. Flesh-flies, from which the third joint of the antennæ had been cut away, were no longer attracted by putrid meat; they flew about as before, but no longer scented the meat from a little distance. Enveloping the antennæ with a thin coating of paraffin produced the same effect. M. Hauser made an anatomical investigation of the antennæ, and came to the conclusion that 'the olfactory organ consists in insects, *i.e.* in all the Orthoptera, Pseudoneuroptera, Diptera and Hymenoptera, and also in a great part of the Lepidoptera, Neuroptera and Coleoptera,—1. Of a large nerve, originating from the cerebral ganglion and running into the antennæ of these animals; 2. Of a perceptive terminal apparatus, formed of bacillar cells, derived from the hypodermis, with which the fibres of these nerves are connected; 3. Of a supporting or auxiliary apparatus, which is formed by pits or cones filled with serous fluid, which are to be regarded as simple diverticula of the epidermis.' It was ascertained that the organ was most highly developed in those insects which employ it in seeking after their food. The greatest number of olfactory pits and cones occur in wasps and bees; thus the hive-bee has 14,000–15,000 pits, and about 200 cones on each flagellum. Flesh-flies and dung-flies also have 60–150 pits on each antennæ; while in the flea which live on plants each of those organs has only 2–5 pits. In general the males have the olfactory organs more strongly developed than the females.

SHOWS AND BEE TENT ENGAGEMENTS.

(In addition to those previously published.)

Hants and Isle of Wight Association.—July 17. Botley and Curdbridge Horticultural Society's Show. July 25. Bishop Waltham Horticultural Society's Show. Aug. 4 & 6. Southampton Horticultural Society's Show. Grand show of bees and honey. Prizes value 25*l*. Aug. 23. Bournemouth Horticultural Society's Show. Sept. 5 & 6. Isle of Wight Agricultural Society's Show at Newport.

Worcestershire Association.—July 17. Evesham Regatta and Horticultural Society. July 23 & 24. Floral and Horticultural Fête at Dudley Castle. July 31. Welland Flower Show.

Suffolk Association.—Aug. 9. Lowestoft.

Dorsetshire Association.—Aug. 22. Shaftesbury. Aug. 24. Blandford Annual Show. Aug. 29. Sherborne. Aug. 30. Wareham.

Berkshire Association.—July 19. Abingdon. Aug. 29. Caversham.

'Useful Hints' and Reports of the Meetings of the B.B.K.A. are postponed till next issue.

THE

OXFORDSHIRE BEE-KEEPERS' ASSOCIATION

Will hold their FIRST ANNUAL SHOW, in connexion with the BANBURY HORTICULTURAL SOCIETY, on TUESDAY, AUGUST 28th. The following Prizes will be given :—

Class I.—BEES.

1. For the best specimen of Ligurian Bees, to be exhibited with the Queen in an Observatory Hive 15/0 10/0
2. For the best specimen of English Bees, to be exhibited with the Queen in an Observatory Hive 10/0 5/0

Class II.—HONEY.

3. For the best exhibition of Comb Honey, in 1 lb. or 2 lb. sections, the total weight to be not less than 12 lbs. Silver Medal and 15/0 10/0 5/0
4. For the best Super of Honey, not sectional Bronze Medal and 15/0 10/0 5/0
5. For the best exhibition of run or extracted Honey, in 12 2 lb. or 24 1 lb. glass jars Certificate and 10/0 5/0 2/6

Class III.—HIVES.

6. For the best Moveable Frame Hive for general purposes, complete, for Summer and Winter use ... 15/0 7/6
7. For the best Moveable Frame Hive, price not to exceed 10*s.* 6*d.* 10/0 5/0

Class IV.—DRIVING.

8. For the competitor who shall in the neatest, quickest, and most complete manner drive out the bees from a straw skep, capture and exhibit the Queen 15/0 7/6

Class V.—HIVES and FURNITURE.

9. For the best and most complete collection of Hives and Bee Furniture most applicable to the present system of Bee-keeping. No two articles to be alike 20/0 10/0

Class VI.—COTTAGERS.

10. For the best Stock of Bees belonging to *bonâ-fide* Cottagers 15/0 10/0

Rules and Entry Forms, together with full particulars, on application to the Hon. Sec., the Rev. F. C. DILLON, Enstone.

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Questions on Bees and their Management answered by return of Post, 3*d.* Stamps. 'Modern Bee-keeping,' 7*d.* 'Bee-keepers' Guide,' by T. W. Cowan, Esq., 1*s.* 8*d.* post free. ILLUSTRATED CATALOGUE and PRICE LIST will shortly be ready, 2*d.* Stamps. Send 1*d.* Stamp for Price List.

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THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

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Editorial, Notices, &c.

AUGUST.

The British Bee-keepers' Association has held three important shows during the present year: at Bridgewater simultaneously with the Show of the Bath and West of England, though not in connexion with it; in London at the Duke of Wellington's Riding School at Knightsbridge; and at York in connexion with the Royal Agricultural Society of England. That much good has been done by these shows to the cause of bee-keeping is undeniable. The Bridgewater Show consolidated the Somersetshire County Association, which had been so long time in forming, and brought out an excellent Honorary Secretary in the person of the Rev. C. G. Anderson, rector of Otterhampton, Somerset. It also administered a galvanic shock to Gloucestershire, and has elicited an offer from a gentleman residing in Cheltenham to receive the names of those who are willing to join an Association. The York Show has had a similar effect in the north of England. Many thousands of persons visited the Bee Department of the Royal Show, and have carried back to their homes a knowledge of what may be done by modern bee-keeping, and a desire to turn that knowledge to account. The Yorkshire Association has received the same stimulus which was given to the Somersetshire Association, whilst rumours of future Associations come to us from Northumberland, Nottingham, and even from the Isle of Man. But there is another side to the picture. Not one of these shows will bring in any addition to the funds of the Central Association. On the Bridgewater Show, which, though excellent in itself, was very scantily visited by the public, there will be a considerable loss. There is only one conclusion to be drawn from these shows, that if the Central Association is to continue its work on the same scale that it has hitherto been doing, it must receive more support. It is, perhaps, undesirable to make any alteration with regard to five shillings being the minimum subscription, as it might exclude many who take a real interest in its welfare; but those who can afford to do so might well double their subscriptions for next year. A fresh appeal for assistance might also be drawn up by the Committee, and sent not only to the Vice-Presidents, who at present contribute nothing to the Association's funds, but to every Peer, Member of Parliament, or other influential person throughout the United Kingdom. At the rate at which County Associations are now being formed, each county will soon be provided with an organization of its own; and the visit of the Royal Agricultural Society to Shrewsbury next year will, no doubt, produce as great a development of bee-keeping in North Wales as has been produced by the York Show in the northern counties. Where success is so nearly attained, it would be a thousand pities if the Central Association were obliged to curtail its work, and narrow its usefulness, from prudential and economical considerations.

USEFUL HINTS.

The Season.—Since our last hints the weather has been favourable for honey-gathering. Many nights have been cold, but, in spite of this, there has been a steady income of honey. Supers have continued to fill, the extractor has been on the spin, and even nuclei have stored a surplus. The second crop of clover is now in bloom, and the limes have burst forth so that we may hope for a plentiful supply. The brambles are also in full bloom, and are evidently yielding a good harvest, so that all things combine to make this season a profitable one.

Extracting.—If you purpose extracting all store from body of hive it will be wise not to delay it too long, as blackberry blossoms yield very black honey, and there is some danger also of getting the samples spoilt with 'honey dew' from the aphis.

Ripe Honey.—As a rule honey is much thinner this season than last; it does not follow, however, that it is not ripe, but care should be taken not to put up unripe honey for sale, as it may ferment and lead to vexatious disappointments, besides ruining your reputation. Mr. Cowan's ingenious invention shown at Knightsbridge will probably not be within the reach of small producers, who will consequently have to submit to a larger outlay of time and labour to attain similar results with makeshift appliances; the simplest of which is standing the vessel containing the unripe honey in a vessel of hot water for some hours until the moisture is evaporated out of the honey, or, what is a more simple course, dispose of the whole in bulk to a dealer who has appliances for ripening large quantities.

Increasing Stocks.—The neighbouring bee-keeper to us—a widow and a cottager—has increased her skeps from three to nine in six weeks by the natural process of swarms, casts, and maiden swarms. If this can be done without help of any kind, those of our readers who desire to increase their stocks ought to find no difficulty in doing so. Care must be taken to ascertain if young queens are fertilised in due course, and see that you have a sufficient number of drones flying at the same time as virgin queens.

Ligurianizing.—We prefer doing this immediately at the end of the honey harvest to late in the autumn. True, the price of imported queens is considerably greater, but the risk of successful introduction is considerably less when there is an abundance of brood and young bees in the hive. We would caution beginners against risking costly queens without caging. It is true that many are so introduced and successfully. The experienced bee-keeper has many short cuts that he could not advise beginners to attempt, as they would probably end in failure and consequent disgust. 'Slow and sure' is a golden rule. If you raise your own Italian queens, very early in the season is preferable to ensure pure fertilisation; but if you purchase, it will be wise to order in advance for delivery about a certain date.

Enemies.—Keep the neighbourhood of your hives free from weeds which afford harbour for frogs, &c. See that Mr. and Mrs. Tomtit have not built their nest under your hive-stand, in hope of feeding their young at your expense; and be a sworn enemy to wasps by destroying their nests, and encouraging the urchins in the neighbourhood to do the same. You will be repaid in your garden as well as save your bees much annoyance.

[Since writing the above, which was crowded out of our last, the weather has not been so favourable; but bees have gathered large quantities in many districts in the few bright spells that we have had.]

HEPTAGONAL CELLS.

Mr. H. Williams Hockin, of Truro, has had a singular experience of bees building their cells in a most heterodox fashion. The marked feature in the construction of the bee-cell is its hexagonal form; occasionally we note a pentagon, and sometimes an irregular, distorted heptagon; but in the piece of comb forwarded for examination to the Knightsbridge Show several inches of seven-sided cells had been built with the utmost geometrical accuracy. They were discovered in a skep, and having been permitted to see a sketch of the position of the comb in which they were found, we attribute this irregularity to the singular manner in which the combs were arranged in the hive, causing the bees to depart from the ordinary rule and to assume the heptagonal, in preference to the hexagonal form.

MR. JAMES ANDERSON, OF DALRY.

We extract the following from the *New York Scotsman*:—'Mr. James Anderson, of Ryeside Cottage, Dalry, Ayrshire, one of the oldest and most successful bee-keepers in Great Britain, at present on a tour through the United States and Canada, is now visiting Jas. Miller and Robt. Paton, at Sparrowbush, N.Y. By reputation, and through the bee journals published in America, Mr. Anderson is well known to nearly every apiarist in this country. He has been well received wherever he has visited, and is wonderfully well pleased and gratified with what he has seen; while from his fifty-three years' experience, as well as being naturally a keen observer, he is no mean authority. It is pleasing to hear him tell how he used to go 'to the burnside, cut and split the saugh wands, get a pickle strae frae a farmer and plett his ain skeps, when a bit laddie, and then "smeek" the bees with brimstone to get the honey.' He portrays, in his native broad Scotch, the great improvement in bee-culture up to the year 1874, when his own exhibit at the World's Fair in London, consisting of fifty-four boxes of honey and other furnishings, took away the lion's share of the prizes. To show his care of packing and handling, the porters started to wheel his honey across the rough floor of the Crystal Palace, but he quickly stopped them, and caused them to carry in a hand-barrow. Exhibits of honey, coming only forty miles, were so badly smashed that, although shown, they were not fit to be seen. Mr. Hooker, one of the judges, raised his hands in wonder, and declared that Scotland had it all her own way. So Mr. Anderson and his two Scottish opponents, Mr. Sword, of Falkirk, and Mr. Alexander Ferguson, of Stewarton, took nearly all the prizes that year, but in subsequent years they had more contention. The English learned a lesson from the Scotch, as they had often done before. Mr. Anderson sails again for Scotland next month, taking with him some of the newest American appliances in bee-culture.'

On Mr. Anderson's return from America a welcome home dinner was given to him by his compatriots. It was held in the 'Turff and Bee-hive' hotel, Dalry, on Saturday, July 21. About twenty gentlemen sat down to dinner, and after an ample repast and the usual toasts Mr. Graham, the croupier, rose to propose the toast of the evening (viz. 'Our guest, Mr. James Anderson'). He said thirty years ago, when he (the speaker) was a mere boy, James Anderson was a noted beeman, not only in Dalry, but in Ayrshire, and went then, as he has done ever since, in August, to Arran with his bees for the second, or heather honey harvest; and it was he who in the year 1873, accompanied with Mr. Sword, of Falkirk, and Mr. Ferguson, of Stewarton, at his own expense, went to London to the first show held under the auspices of the British Bee-keepers' Association in the Crystal Palace, taking with them over forty supers of Stewarton boxes of the finest genuine Ayrshire honey; and now it was he who in advanced life had gone as the pioneer to see what our American cousins knew about bee-keeping, and after ten months' absence had returned to give us a faithful report as to the improvements they were making in the States. As a number of gentlemen had come a long way to honour 'the king of Scottish bee-keepers,' he would not say more, but call upon them to drink a bumper to 'Our Guest.'

Mr. Anderson said he had often thought of his native land and the bee-keepers while away, but he never could have hoped for such a hearty welcome as his brother bee-keepers from all parts of Ayrshire and other counties had given him to-day. It would be folly in him to take up their time, so he would at once proceed to give them a few experiences of what they were no doubt willing to hear, and what he saw and heard from their American cousins. Firstly, there they were just like themselves, kindly, obliging, and hospitable; he saw none of them wearing spectacles behind their heads, nor did he think they were a bit further 'forrit' (advanced) than themselves, beyond the fact that they had brought capital into play; and, like many other things they did, their bee-farming was conducted on a gigantic scale, they were not bee-keepers like those in this country for a hobby; but they made it their business, many of them keeping 200, 300, 500, and 1000 hives. Mr. Charles Dadant, with whom he spent a pleasant time, had four apiaries with about 200 or 400 hives in each; then he visited Mr. Newman at Chicago, who was very kind, and inquired after all his Scotch friends; then he visited St. Louis and Texas, calling on Mr. John Muir and Judge Andrews. The apiary of the latter is in a splendid condition, all worked on the Langstroth bar-frame principle; but it was with Mr. D. A.

Jones, Beeton, Ontario, that he was most delighted; and he considered him by far and away the largest and most advanced bee-keeper in the world. Everything was reduced to a system at the apiary he visited, and he has several. He had fourteen men at work who were regular journeymen bee-keepers; and when not engaged on the apiary filled in their time by manufacturing wax-sheets, and every other appliance connected with bee-culture. Mr. Jones seemed to have every kind of bee but our own black bee, and he is very particular about having the various races kept pure in breeding. Before sitting down he would counsel those around him, and all bee-keepers in Britain, firstly, to pay more attention to their stocks; and secondly, to the marketing of their honey, for he felt sure if this were done on a large scale, they would need no imported honey; and already they had enough of bee-men who had knowledge of their work to enable them in Britain to hold their own against all comers.

The rest of the evening was spent in song and sentiment. Letters of apology were received from Mr. Sword, Mr. Thomson, Mr. Ferguson, and others. Mr. R. Bennett represented the Caledonian Apiarian Society, and in replying to the success of the Society, said no doubt many more of the members would have been present, but they were busy preparing for the Inverness Show, which would be the furthest north county yet penetrated, and where they hoped to make many converts to bee-keeping. It takes place on 24, 25, 26, and 27 July.

ANNALS OF COUNTY ASSOCIATIONS.

HISTORY OF THE DORSETSHIRE BEE-KEEPERS' ASSOCIATION.

It is pleasant to review the past when the story to be told is one of peace and progress, and such, in brief, is the history of the organization named above, its short career having been generally marked by a most satisfactory and steady advance.

The Association had its origin in a little show held at Sherborne, in August 1876, under the management of Mr. C. Tite, of Yeovil. Having found much pleasure in apicultural pursuits Mr. Tite was anxious for his neighbours to know something about bees and bee-keeping, and he very naturally thought that a show would be one of the best means of enlightening the public on the subject. As it would have been too risky a venture to hold a bee-show pure and simple, and as no flower-show was then held nearer to Yeovil than Sherborne, Mr. Tite appealed to the committee of the Horticultural Society in the last-named town to aid him in the matter. The gentleman who then acted as honorary secretary of the Society, Mr. J. Ellis, took the proposal warmly in hand. After much discussion, the committee undertook to give 5*l.* for prizes, and to pay all necessary expenses, on the understanding that they should take the admission-money. Small and unattractive as the prize-list was, there was an excellent display of honey, hives, and apicultural appliances. Messrs. Abbott, J. Hale, J. Hunter, J. King, J. Lee, P. Martin, O. Poole, and Mrs. Pagden, were amongst the leading exhibitors. So liberal was their support, that the large tent provided would not contain all their contributions, many of which had to be staged in the open. Local bee-keepers came out strongly with honey, as many of them had long been in the habit of exhibiting at flower-shows in various parts of the county with a view to teach cottagers, that it was not necessary to kill their bees when they deprived them of their surplus honey. Chief amongst these were the Rev. Prebendary Warre, of Bere Regis (who now resides at Melksham), Rev. F. J. Rooke, of Rampisham, and Mr. J. Brown, of Maiden Newton. The first-named gentleman took the lead with a splendid set of supers (made by his butler, Mr. R. Manfield), which were afterwards figured in the *Journal*. The great feature of the show, however, was the manipulations conducted by Mr. Abbott and his son, Mr. James Abbott. These were perfectly novel in the district, and excited the greatest interest and astonishment. The receipts for admission covered all expenses, including the prizes, and left a balance in hand. The show gave a great impetus to bee-keeping in the county, as most of the spectators were delighted with what they saw, and the local press published excellent reports. One of the greatest benefits of this little effort, however, was the bringing of the bee-keepers of the district into personal communication, thus enabling them to compare notes, and start on a career of friendly rivalry. The formation of a County Association soon followed, the names of the officers, with Mr. C. E. Norton, of Shaftesbury, as honorary secretary, appearing in the *Journal* for January 1877. In March following the committee met at Shaftesbury, and made arrangements for the coming season. The local press took the matter up, and many of the principal residents in the county subscribed liberally. Arrangements were made for holding another show at Sherborne, and the managers of the Horticultural Society were so well pleased with the result of the first that they gave 10*l.* instead of 5*l.* towards the prizes. The Association added 10*l.* more, and a very good programme was the result. In the meantime the members of the Dorchester branch had determined to have a show in their own town. Mr. M. H. Tilley, who had a successful apiary, agreed to act as local honorary secretary, and he was most enthusiastically supported by another zealous bee-keeper, Mr. W. R. Vatcher. The committee of the Dorset County Horticultural Society gave 5*l.* towards the prizes of the Dorchester exhibition, and the Association increased the amount to 22*l.* 2*s.* The show was held on August 23, and 15*l.* 19*s.* 4*d.* was taken for admission to the bee-tent. The British Bee-keepers' Association gave five medals here as well as at the Sherborne show—two silver and three bronze. The honey season of 1877 was very poor, but Dorset men were quite equal to the occasion. Instead of giving up in despair, as their brother bee-keepers in Somerset and Devon did, when they heard of the prospects of small supers, and few of them, they renewed their efforts, and were duly rewarded by having two excellent shows. The enthusiasm and genial hospitality of the Dorchester friends will not soon be forgotten by those who witnessed the one or partook of the other. The second show at Sherborne was held on August 29. There was a capital lot of honey, the bees having pulled up wonderfully when the heather began to bloom; the consequence being that the supers, contributed by Messrs. W. H. Dunman, Jun., and T. Stickland, literally 'astonished the natives.' Several local hive-makers also put in an appearance—Mr. R. Legg, of Compton Abbas, and Mrs. C. W. Downes, of Blandford, being amongst the number. The observatory hives were specially interesting at both exhibitions this season, and included interesting and excellent novelties from Messrs. Tilley, Vatcher, and Brice-Wilson. Manipulations were also conducted at Iwerne Minster during the summer by Mr. C. E. Norton and Mr. G. Lydford, of Shaftesbury.

In 1878 the county show was held at Dorchester, when a liberal list of prizes brought a very good number of exhibitors. The principal supers, sent by Messrs. Dunman, Antell, and Stickland, weighed 80 lbs., 70 lbs., and 51 lbs., respectively. Mr. Norton and others also visited the cottage-garden shows at Fontmell Parva, and Okeford Fitzpaine, where they gave practical lessons in driving, transferring, &c.

In 1879 Mr. W. H. Dunman, jun., of Troytown, succeeded Mr. Tilley as local hon. secretary for the Dorchester dis-

triet; and shows were held at Compton Abbas, Dorchester, and Okeford Fitzpaine, that at the county town being the chief. The general honorary secretary was again ably assisted by Mr. Vatcher, as well as by Mr. Dunman. The interest manifested by the public was most encouraging, and about 13*l.* was taken for admission. A little lecturing was also done during the winter months by Mr. C. Tite and others.

In 1880 Mr. Dunman took entire charge of the secretary and treasurer's duties; and the subscriptions were increased from 23*l.* 11*s.* 6*d.* to 35*l.* 11*s.* The show was held at Weymouth, 20*l.* being given for prizes. Owing to the absence of manipulations the takings amounted to only 9*l.* 16*s.*; but there was a splendid display of honey, hives, and appliances, there being no less than seventy-four entries. One exhibitor brought 400 lbs. of honey, and another almost as much; the greatest weight from a single stock being 89¼ lbs. Moreover, the report for the year contained the following satisfactory announcement:—'Several cottagers have already become experts, and some of them have done good service for the Association.' During the season lectures were given in various parts of the county by Mr. F. Cheshire, Mr. J. Brown, and the honorary secretary. It was also arranged for some of the principal members to reply to questions on practical bee-keeping when those less skilled were in want of advice. The local papers also devoted considerable space to reports of shows, lectures, and the annual meeting.

The year 1881 was again one of progress and success. Two exceedingly good shows were held—one at Sherborne and the other at Corfe Castle, 20*l.* being awarded as prizes. At the first-named the display of honey was probably the largest ever brought together in the county, and the quality could not easily be surpassed. So even was the competition that equal first prizes were awarded in several classes. The heaviest pile of supers from a single stock weighed 80¼ lbs.; others reached 77 lbs. and 72 lbs. net. Bee furniture was also well represented. During this year forty-six new members were added to the Association. In consequence of the large amount of work devolving upon the honorary secretary the committee appointed an assistant (Mr. Gover, of Puddletown). They also started their own expert (Mr. J. Antell, of Puddletown). Several lectures were given in different parts of the shire by Mr. F. R. Cheshire, of Acton; Rev. H. Everitt, Dorchester; Rev. J. L. Stanton, Combe Keynes; and the honorary secretary.

Although 1882 was a very bad honey season, the committee of the Dorset Bee-keepers' Association were able to report most satisfactory progress. They procured a good bee-tent early in the year, and were thus able to hold manipulations in connexion with several village flower-shows, in addition to visiting the floral *fêtes* at Blandford and Sherborne, and a grand bazaar at Canford. The improved methods of bee-culture were thus carried to the very homes of peer and peasant, and the result can scarcely fail to be speedily seen. The chief show was held at Bournemouth, the committee having consented to step over the Hampshire border, partly because 'the Hampshire Torquay' afforded a very convenient meeting-place for many Dorset bee-keepers, and partly because they were anxious to assist in the formation of a county Association for Hants. The show was good in all departments, and the interest manifested therein was most encouraging. The demand for honey during the year was such as to enable the leading producers to clear out at good prices, and the honorary secretary was able to sell several hundredweights for members, thus proving the fallacy of the 'no market.' This has already told upon the cottagers, who are now freely joining the Association. At the end of the year the number of members was considerably larger than at the beginning, and there was a good balance in hand.

But, great as has been the success hitherto attained, the committee are sanguine enough to believe that a much wider field of usefulness will gradually be opened up. The increasing intelligence of the labouring classes will enable them to see the advantages of bee-keeping, and a larger number will soon seek to share its pleasures and its profits. That there will be no lack of anything required to bring about 'a consummation so devoutly to be wished,' the past history of the Association affords the most ample guarantee. There are willing workers and generous donors still to be found when good and useful work is to be done; and the enthusiasm of local bee-keepers now obtains careful guidance and spirited direction from the central organization. The committee, therefore, look very hopefully to the future, and will earnestly strive to keep abreast of the times, still bearing in mind the motto that has more than once appeared upon their reports and circulars, 'Nothing without labour.'

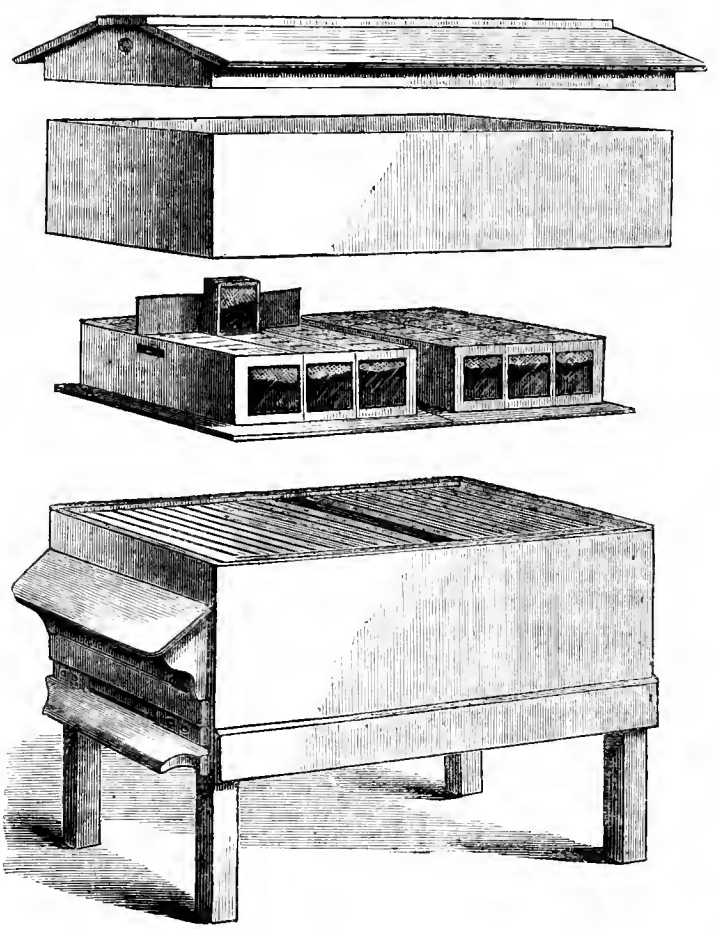
The Association has become one of the institutions of the county. It has already given a great impetus to bee-keeping in the district. It has opened up new channels between honey-producers and consumers, giving the former a ready sale, and showing them how to increase their supply with ease and comfort, and putting within the reach of consumers a luxury of far higher quality than was hitherto procurable at a less cost. It has been the means of teaching many a labouring man how to increase his income in a very pleasant manner. It has done good educational work by helping to remove the ignorance, prejudice, and superstition, against which bee-keeping has so long had to contend. It has assisted in the great work of humanity, by helping to abolish the resort to the cruel, wasteful, and unnecessary 'smotheration' system. It has circulated a mass of excellent bee literature, and it has been the means of opening up various local dépôts for the supply of apicultural necessaries.

If the success attained by the Dorset Bee-keepers' Association has not been such as to place it actually at the head of similar organizations in this country, it has, at least, been sufficient to give it an honourable rank. There have been several reasons for this success. The county is eminently suitable for apicultural pursuits, the natural flora being rich, beautiful, and varied; while the wide range of cropping has added greatly to the lavish abundance and wondrous variety of the honey-yielding flowers. Moreover, Dorset is happy in the possession of a large number of generous and far-seeing county residents, who are ever ready to help forward any good cause that has for its object the moral, social, or spiritual elevation of their poorer brethren. When it is mentioned that Dorset bee-keepers have as their President the venerated Earl of Shaftesbury, who is claimed by the world at large as well as by his native shire, it will readily be understood that they are fortunate here again. But add to the list the names of Lord Alington, Lord Wimborne, the Hon. Colonel Digby, M.P., Sir R. G. Glyn, Bart., and a host of others, and the position of the Association is easily understood. Then, again, the local press have dealt most generously with the work of the committee, and has enabled them to place their aims and wishes before the public whenever it was necessary to do so. Indeed the valuable assistance thus rendered has been one of the chief causes of the success of the Association.

THIRSK: BEE CULTURE.—On Saturday afternoon, July 14, an exhibition on the management and culture of bees was given in the park attached to Thirsk Hall, where a gauze tent had been erected for the purpose. The chair was occupied by Mr. J. T. Hansell, and there was a fair company present. Mr. G. H. Rickards delivered a practical lecture on bee-keeping, and Mr. J. Lake, one of the Yorkshire Bee Association's experts, exhibited the method of bee-driving, transferring, extracting honey, uniting bees, &c. The queen-bee at intervals was also exhibited to the company, and the proceedings throughout were of an interesting character.

NEIGHBOURS' TWIN-STOCK HIVE.

The illustration which we here present shows a *Twin-Stock Hive* exhibited by Messrs. Neighbour and Son in Class 6 at the late Annual Show of the British Bee-keepers' Association at Knightsbridge, and for which they were awarded a third prize.



The walls are double, being nearly three inches thick, with cork-dust between, and, as its name implies, accommodates two colonies of bees; a division-board separates the two stocks, thus enabling them to have the advantage of each other's warmth.

Dr. Dzierzon, the advocate of twin-stock hives, says, in *Rational Bee-Keeping* (page 44):—'The suitability of the dwelling chiefly depends on the material of which its walls are made. Warmth is the chief necessity of bees and their brood. This indispensable warmth, which they are able to produce only by a certain amount of exertion and at the expense of their provisions, the hive must keep together as much as possible, which will be the case if the walls are made of a substance which conducts heat very slowly.'

Each stock hive is furnished with 9 Standard frames, fitted with Dr. Pine's metal-ends, and each top-bar has a saw-cut to admit of the insertion of a sheet of comb-foundation. There is an entrance at each end, with slides to reduce or expand the opening. The floor-boards are moveable for cleansing, &c., at any time, wide frames containing sections are provided for placing in such stock hive, with perforated zinc separator to exclude the queen. When preparing for winter the number of frames may be reduced and closed in with dummies, so that the warmth may be still further secured.

As shown in the engraving, two crates of sections are worked on top, one over each stock: the whole being surmounted by roof and cover. This cover admits of packing carpet or some warm material over the crates.

Class 6 represented moveable-comb hives complete for summer use, with facilities for harvesting honey, and with arrangements for wintering, and whose price was not to exceed 40*s*.

BEES AS HYBRIDIZERS.

On Monday, the 9th ult., a special lecture was delivered at the Riding School, Knightsbridge, by Mr. Frank R. Cheshire, the subject thereof being 'Bees as Hybridizers and Fruit-producers; or, the Dependence of Orchard Crops upon Bees.' The lecture was given in the south-east corner of the building; on the walls of which hung several diagrams representing sections of different fruits and plants, to which the lecturer frequently referred during the course of his remarks. He commenced by explaining that the tongue of the bee is of extreme length in proportion to the size of the insect. In passing over the bloom, the body of the bee becomes dusted by the anthers which contain the pollen. This pollen is conveyed from one bloom to another, in each of which it is taken up by the stigmata, and thus cross fertilisation is established. Very many blooms depend for their production on the visits of bees. The hive-bee is only one amongst the 177 distinct species of bees that gather honey from flowers. It is the most industrious of any. It faces bad weather when the wild bees will not. Any one who will trouble himself to go out seeking for specimens of wild bees will soon find this to be the case. He will discover that in bad weather the wild bees keep safely in their nests at home. He (the lecturer) remarked that the value of bees in fertilising fruit-trees was strikingly illustrated to him some time ago. He had heard of a lady in Derbyshire, who made large profits from her orchards. She was the possessor of several hives of bees, but evidently did not know how these insects were co-operating with her in the production of the cherries. For some reason or other, she decided to give up her bees. The result was most disastrous to the yield of the orchard.

He then pointed to some diagrams showing sections of two kinds of primroses, the thrumb-eyed primrose and the pin-eyed primrose, and described the means by which one kind is fertilised by the other through the medium of the bee. It was not generally known the reason of apples falling from trees, and in many cases the popular notions on this subject were quite erroneous. The apple is divided into five different sections, which were gathered together into one envelope. The bloom of the apple has five stigmata to each of these divisions. Each of these stigmata must be independently fertilised, or the result is that the fruit becomes defective in formation, and withers prematurely, and drops from the tree. He

then produced several imperfectly shaped apples, in each of which some sections were fully developed, whilst others were not properly grown. Upon cutting open the specimens it was discovered that fertilisation had not been effected in the undeveloped sections.

The same remarks applied to a large extent in the case of the strawberry, which required from two to three hundred distinct fertilisations in order to secure a perfectly juicy and ripe fruit. No doubt many had seen a strawberry in which one portion was quite ripe, while another part of it remained green and undeveloped. Here fertilisation has not been complete. The lecturer then exhibited the hive of a wild-bee, which he had discovered, and said it had been built on the Stewarton principle, that is, story above story. A small tunnel had been constructed, at the end of which some eggs were deposited, these were covered over with a piece of leaf, and this process had been repeated until there were three or four layers of eggs. It might appear to his hearers difficult to understand how the young bees when hatched could extricate themselves from the layers of the nest which were closed up one above another, especially as the eggs first laid were at the bottom. This was to be explained by the fact that the eggs last laid were always hatched first. Mr. Cheshire concluded his observations with some eloquent remarks on the phenomena of nature, and the instruction and pleasure to be derived from the cultivation of bees.

Mr. Stewart moved a vote of thanks to the lecturer, which was carried by acclamation.

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

General Meeting.

The General Meeting was held at 17 High Road, Knightsbridge, on Friday, July 6th; the Baroness Burdett-Coutts occupying the chair. Present—Messrs. Stewart, Griffin, Bartrum, N. Bower, Fletcher, J. L. Sissons, Cowan, Raynor, Rev. N. Andrewes, Carr, the Hon. Rev. Bligh, F. H. Lemare, W. Rogers. It was decided that the Presidents of Associations should take it in turn to distribute the prizes at the Annual Show, and that the President of Devon be asked to do so next year. The small penny guide on 'Skeps' was produced, and the Rev. E. Bartrum proposed a vote of thanks to Mr. Cowan for have brought it out. The Secretary stated that the railway companies would not entain any idea of reducing the rates at present on goods, &c. The question was discussed by the Hon. Secretary, Mr. Stewart, Mr. Cowan, Rev. N. Andrewes. It was decided to continue to try and get the concession. There was a discussion on sending bees by post. The Rev. G. Raynor proposed that the railway companies be petitioned again on the subject for the cheaper transit of goods to shows; and also that the Postmaster-General be asked to allow the transit of queen-bees through the post. It was seconded by Mr. Stewart. It was proposed by the Rev. H. R. Peel, that a vote of thanks be given to the Duke of Wellington for kindly lending the Riding School free of cost for our exhibition; and also to the Earl of Rosebery for kindly giving us the piece of ground for the manipulations to be held in connexion with the examination of the experts. Mr. Stewart then laid before the meeting his views of opening a central depot for the sale of honey, &c., and also a place for the library, and explained how the cost of such should be met, viz., each Association should subscribe 2*l.* 2*s.*, and also by annual subscriptions of 5*s.* Mr. Stewart said he should take steps to lay his views before the counties. Mr. Cowan then brought before the meeting the subject of adulteration of honey, and said that all the honey from America bought at present in London was adulterated; and he suggested that our Association should at once take up the subject, and that honey should be bought and analysed, and if found adulterated the vendors should be prosecuted. He stated that five or six samples bought in London markets were all found to be greatly adulterated on being analysed, and he wanted to put our English honey before the public. The discussion was continued by Mr. Jackson (Sussex), Rev. E. Bartrum, Rev. G. Raynor, Mr. W. N. Griffin, Mr. Dunman, Mr. Ingram, Rev. F. G. Jenyns, Mr. Cowan, Rev. J. Dixon, J. N. Bower, Rev. W. Rogers (Cornwall), Mr. Thorpe. The Baroness Burdett-Coutts said it would be in her power to give a space in the Columbia Market as a depôt as an experiment, and that as long as this Society desires it might use the rooms of the Society of Prevention of Cruelty to Animals for their meetings as usual. The Rev. J. B. Humfrey begged to propose the Baroness's kind offer be accepted, subject to the approval of the Sub-Committee finding it feasible. It was seconded by Mr. Griffin, and was carried unanimously. The Baroness said she would like to say that if it did not succeed at the Market, she should be very sorry if it was not tried somewhere else. A vote of thanks was proposed by the Rev. N. Andrewes and seconded by Mr. Dunman for the Baroness so kindly taking the chair, and having such an interest in the welfare of our Association.

At the Quarterly Conference of the Committee of the British Bee-keepers' Association with representatives of County Associations. Present—Mr. J. N. Bower, Warwickshire; Mr. C. Kent, Cornwall; Mr. W. N. Griffin, Devonshire; Rev. W. E. Burkitt, Wilts; Rev. A. Roberts, Hertfordshire; Rev. J. N. Dixon, Wilts; Mr. A. H. Martin, Worcestershire; Mr. E. H. Bellairs, Hants; Mr. W. N. Dunman, Dorsetshire; Mr. Cowan, Mr. Raynor, the Hon. Secretary, Rev. H. R. Peel, Mr. Stewart, Mr. Jonas, the Hon. Rev. Feilding, Salop; and Rev. N. Andrewes, Sussex. The minutes of the last quarterly meeting were read and agreed to, and the chair was taken by Mr. T. W. Cowan. The question of whether the County Associations would support the central Society in obtaining a central depôt for the sale of surplus honey in London was laid before the meeting by Mr. Stewart, who stated the communications he had been enabled to obtain. The discussion was entered into by the following:—Rev. G. Raynor, Mr. E. H. Bellairs, Mr. Bower, Mr. Scott, Rev. N. Andrewes, Mr. Dunman, and Mr. Cowan.

ROYAL AGRICULTURAL SOCIETY SHOW AT YORK.

British Bee-keepers' Association.

Under the head of Bee-hives, Honey, &c., there was an excellent display, an exhibition of bee-keeping appliances having been held with the co-operation of the British Bee-keepers' Association. There was a large and meritorious collection of hives, which, together with the samples of comb-foundation made of pure bees' wax, occasioned satisfactory competition for the prizes offered by the Association above named. Messrs. S. J. Baldwin, T. B. Blow, and Neighbour & Sons, were most successful exhibitors; also Mr. J. Garratt. Mr. Baldwin's expositions of the means whereby bees may be kept profitably and pleasurably were very interesting.

The Judges were the Rev. E. Bartrum, Great Berkhamsted, Herts, and Messrs. T. W. Cowan, Comptons Lea, Horsham, and J. M. Hooker, Sevenoaks, Kent.

The Committee of the British Bee-keepers' Association, with the Hon. Sec., the Rev. H. R. Peel, were continually employed in replying to the numerous questions of the visitors.

The prizes awarded were as follows:—

Best hive for observation purposes, all combs visible on both sides (stocked with bees and their queen), 1st, 1*l.*, S. J. Baldwin; 2nd, 15*s.*, T. B. Blow; 3rd, 10*s.*, Neighbour & Son, London.

Frame-hive for general use in an apiary, 1st, 1*l.*, Dines and Son; 2nd, 15*s.*, T. B. Blow; 3rd, 10*s.*, S. J. Baldwin.

Frame-hive for cottagers' use (with arrangements for summer and winter use), 1st, 1*l.*, S. J. Baldwin; 2nd, 15*s.*, Edey and Son; 3rd, 10*s.*, T. B. Blow.

Collection of hives and bee furniture, 1st, 2*l.*, Neighbour and Son; 2nd, 1*l.* 10*s.*, T. B. Blow; 3rd, 1*l.*, S. J. Baldwin.

Super of honey (not being a sectional super), 1st, 1*l.*, W. Sells.

Twelve 2-lb. sections of comb-honey, 1st, J. Garratt; 2nd, 10*s.*, C. Guston; 3rd, 5*s.*, the Rev. T. B. Garland.

Exhibition of run or extracted honey (in twelve 2-lb. or twenty-four 1-lb. glass jars), 1st, 1*l.*, J. Garratt; 2nd, 10*s.*, R. R. Godfrey; 3rd, 5*s.*, W. Martin.

Samples of comb-foundation made of pure bees' wax, consisting of 2½ lbs. thick (worker cells) for stock hive, and 2½ lbs. thin for supers, 1*l.*, S. J. Baldwin, and T. B. Blow, equal; 3rd, Neighbour and Son.

THE YORKSHIRE BEE-KEEPERS' ASSOCIATION.

On Wednesday afternoon, July 18, a meeting was held in the room above the Savings Bank, York, under the auspices of the Yorkshire Bee-keepers' Association, to hear what progress had been made by the Association since its formation in July last. The chair was occupied by the Rev. H. R. Peel, hon. secretary of the British Bee-keepers' Association, and there were also present Mr. S. J. Baldwin (expert); Rev. Mr. Hodgkinson, Strensall; Miss Dalton, Haworth; Mr. Eastwood, Ackworth; Mr. H. M. Cross, Mr. A. E. Scott, Brough; Mr. T. B. Abbott, Selby; Mr. A. J. Cholmley, Rillington; Mr. W. H. Raw, Danby; Mr. G. H. L. Rickards, hon. secretary of the Yorkshire Association, &c. &c.

The Chairman said that it was not necessary to say much about the great interest attaching to bee-keeping in the present day. All those who had visited the show-ground had seen how very largely the bee department was patronised. This interest was not the result of mere curiosity or a new thing, but it arose from the importance which had been attached to bee-keeping throughout England generally. That importance arose from its being seen that bee-keeping was a very material help to agricultural labourers and others having small incomes. The Royal Agricultural Society of England had recognised this fact, and not only do they invite bee-keepers every year to have an exhibition, but they allowed hives and other appliances to be recognised as agricultural implements. He therefore hoped they had got a footing among the representatives of the agricultural interest in England. The exhibition taught how honey could be produced in a pure and saleable form. It was a great advantage that the honey should be pure, because such large quantities of it were imported into this country, much of it greatly adulterated. Last month 4700*l.* worth of honey was imported into this country, therefore it was of importance that English bee-keepers should make the most of their short harvest. How this was to be done the Chairman explained at length, and went on to point out the advantage of joining County Associations, so that those who kept bees might have the assistance of the advice of those more experienced than themselves. Having spoken of the work done by the Central Society, he called upon Mr. Rickards, the secretary of the Yorkshire Bee-keepers' Association, to say what had been done by that Association since its formation.

Mr. Rickards said that the responsibility of the formation of a Yorkshire Bee-keepers' Association might be laid entirely at his door. He had for some time thought that Yorkshire ought to have an Association. He knew that many counties had associations, and he looked upon it as a reproach to the largest county that it should be without such a society. He therefore inserted a letter in the two principal Leeds papers in June of last year, proposing that such an association should be formed. In response he received a number of letters that surpassed his expectations, and on the first of July the first meeting was held in Leeds. Lord Harewood became the president, and Mr. Lane-Fox and Mr. Francis Darwin each became vice-president. The names of eighty members had been received, and the outlook at the present time was most encouraging. The General Meeting was held in March last, and it was then determined that a bee-tent should be procured, and this had since been done. They had given an exhibition at Malton, at Hemingborough, and at Doncaster. In August they had engaged to give exhibitions at Howden, Ackworth, Clitheroe, and Danby-in-Cleveland. There Lady Downe took a great interest in bee-keeping, especially in doing away with the barbarous practice of destroying the bees to get the honey. Her ladyship was exceedingly anxious that her tenantry should have the opportunity of learning the more humane method of getting the honey taught by the society. Those present would see that his society was likely to have a busy month in August. Lord Scarborough had consented to become a vice-president, and Lord Auckland had been requested to occupy a similar position. A large number of the most enthusiastic members of the Yorkshire Association came from Ackworth, and it was proposed to form a branch association at that place. In conclusion, Mr. Rickards assured the meeting that the Yorkshire Association was making very satisfactory progress.

Mr. Baldwin, the expert, who had been lecturing in the show-ground, then gave a very interesting address upon bee-keeping and management, and remarked that he had never met more enthusiastic bee-keepers than those he had met in Yorkshire.

Many questions having been asked and answered, the meeting terminated.

LINCOLNSHIRE AGRICULTURAL SHOW, GAINSBOROUGH, JULY 10-12.

THE BEE DEPARTMENT.

One of the most interesting and instructive parts of the Society's show was that of the bees, honey, and hives, introduced for the first time at the meeting at Sleaford last year; and certainly it is of growing importance, judging by the throngs who visited the various tents and watched the operations going on therein. This department was under the special management of Mr. R. R. Godfrey, of Grantham, and Mr. Walter Martin, of Wainfleet, as stewards, assisted by Messrs. Bolton and Brett, and other members of the Lincolnshire Bee-keepers' Association, with Mr. Henry Yates as a most practical and experienced judge and Mr. Baldwin an able expert. The entries made in the various classes were well met, there being only two omissions.

In Classes 1 and 2, Bees in Observatory-hives. These were arranged in a separate building with exhibits, and, as usual, afforded a never-ending source of interest.

In Class 1, for the best specimens of Ligurian or any other distinct variety of honey-bee, other than the English black bee, there were some most beautiful specimens of Ligurian, Cyprian, and Holyland bees. The 1st Prize was awarded to Messrs. Abbott Brothers, Southall; 2nd, Mr. J. Plowright, Grantham.

In Class 2, English bees: 1st Prize, Mr. G. T. Melbourne, Nocton Heath, Lincoln; 2nd, Messrs. Abbott Brothers.

Class 3. Best and largest exhibition of super honey, the produce of one apiary: 1st Prize, Mr. R. Thorpe, Evedon. There was only one entry in this Class,—a

strange contrast to last year, when there were about seven or eight hundredweight staged at Sleaford, and a much larger quantity at the Lincoln Show. Probably this may be accounted for to some extent by exhibitors preferring to be in the prize list at Knightsbridge, and again at York, and so left out Gainsborough.

In Class 4, for the largest and best exhibition of extracted honey in glass jars, the bulk was not so large as last year, but the quality much better. First prize was awarded to Mr. R. Thorpe, Evedon; 2nd, Mr. Walter Martin, Wainfleet; 3rd, R. R. Godfrey.

Class 5, for the best, complete, and most practical hive on the moveable-comb principle, frames filled with comb-foundation, with arrangements both for storing surplus honey and for wintering, price not to exceed 30s. There were eight exhibits, and produced extraordinary keen competition, and certainly was no light task for the Judge to decide upon the different merits combined, all being so excellent. The first prize was awarded to S. J. Baldwin; the second to Messrs. Abbott Bros.; the third, Mr. G. T. Melbourne, Nocton Heath.

Class 6, for the best, complete, and most practical hive on the moveable-comb principle, with arrangements for summer and winter use, price not to exceed 7s. 6d. The object of the managers of this department has been to encourage the production of a good hive that should be within the reach of cottagers, to induce them to adopt the more modern system; and the exhibits show that great progress has been made in that direction, and their determination to prove that a good and cheap hive can be produced at a cost of from 5s. to 6s. was abundantly manifested. First prize was awarded to Mr. G. Stothard, Welwyn, Herts; 2nd, Mr. J. B. Jevons, Market Rasen, Lincoln; 3rd, Mr. S. J. Baldwin.

Class 7, supers for harvesting honey in a saleable form. There were some neat and cheap sectional supers fitted in crates. First prize awarded to Messrs. Abbott Bros.; 2nd, S. J. Baldwin.

Class 8, for the best honey extractor. First prize was awarded to Messrs. Abbott Bros., for a machine which is simple in its construction, easy working, compact, portable; and, if it could be offered at a little lower price, it would no doubt be the favourite with most apiarians.

Class 9, for the best collection of hives and bee appliances. First prize was awarded to Messrs. Abbott Bros.; 2nd, Mr. Best, Boston; 3rd, Mr. S. J. Baldwin. So numerous were the articles in this class, that it alone formed a show, bewildering in its variety to the uninitiated, and afforded an opportunity to the bee-keeper of spending a profitable hour or two.

Class 10 (special: by an old Lincolnshire bee-keeper), for the best straw hive, with floor-board, cover, feeder, &c., showing the most simple and ready means of managing, with a view to obtain super-honey, the hive to be stocked with bees working, and the principle fully demonstrated. There were four entries. First prize was awarded to Mr. G. T. Melbourne, Nocton Heath; the second to Mrs. Brown, of Whaplode. This class is a novelty, and may be added to advantage at all shows in future.

The manipulating tent was well patronised on the first day, crowded on the second, whilst on the third day, with hourly exhibitions, it was so besieged that the outer walls had to be removed to allow the masses of eager spectators to get a peep at the operations, and to hear Mr. Baldwin's explanations. The stocks of bees for manipulations, which were kindly supplied by Mr. Thorpe, of Evedon, Mr. Melbourne, of Nocton Heath, R. R. Godfrey, Grantham, and Mr. Beaulah, of Raventhorpe. A good business was done in hives, &c., but the sales of honey were small.

DEVON AND EXETER BEE-KEEPERS' ASSOCIATION.

This Association had its Manipulation Tent erected on Mr. Ley's Lawn, near the Clock-tower, Barnstaple, at the time of the North Devon Horticultural Society's Show, on the 27th and 28th June; but on the first day the rain fell in such torrents that nothing could be done. The manipulations were carried out by the hon. expert, Capt. Gilbert, R.N., and the arrangements of the show were under the hon. secretary, Wm. N. Griffin. The Horticultural Society offered prizes, and Mr. Griffin was awarded first prize for Best Harvest of Comb-honey, and first for Sections; Mrs. Dickinson gained first for Beeswax, Capt. Gilbert carrying off second honours. Mr. Butt was awarded first prize for Collection and first for Cheap Bar-frame Hives, whilst Capt. Gilbert was awarded second for Collection.

MIDDLESEX BEE-KEEPERS' ASSOCIATION.

The Horticultural Society of Ealing, Acton, and Hanwell, held their annual meeting at the grounds of Dr. Christie, The Common, Ealing. The Middlesex Bee-keepers' Association held their show at the same place, and proved an interesting adjunct to the Society's show. The Association had secured the use of the tent of the Berkshire Bee-keepers' Association, and throughout the day there was a constant concourse of eager visitants. Messrs. Shadwell and Robinson were the experts on the occasion; and Mr. B. Wilson, with the aid of diagrams, explained the object of the operations. There was a display of hives and other bee-appliances. Lord George Hamilton, M.P. for Middlesex, has kindly consented to be President of the Association.

GLOUCESTERSHIRE BEE-KEEPERS' ASSOCIATION.

Persons desirous of becoming members of a Gloucestershire Bee-keepers' Association are requested to send in their names and addresses to D. Slode, Esq., 12 Promenade Villas, Cheltenham. We trust the residents of the county, more especially the bee-keepers, will heartily respond to this invitation.

NOTTINGHAMSHIRE ASSOCIATION.

The Rev. Alexander H. Halley, of Cotgrave, Notts, has undertaken to receive the names of persons who are desirous of becoming members. Steps are now being taken to establish an Association for Notts on a sound and firm basis, and we trust all those who were members of the former Notts Association will send in their names to Mr. Halley without delay.

CORK AGRICULTURAL SOCIETY.

The tent of the Irish Bee-keepers' Association, at the Cork Agricultural Society's meeting, proved to be one replete with interest. The tent was largely visited by numbers of people during the show. It was under the management of Mr. Edmondson, of the firm of Edmondson Brothers, Dublin; and the expert in charge of the bees was Mr. T. B. Blow, of the British Bee-keepers' Association, specially engaged to come over for the manipulations and lectures. Mr. Blow drove the bees through hives, and the methods of transferring and extracting their honey were shown. The lecturer was ably assisted by Mr. Davis and Brother Joseph, a religious, of Loughrea, who may be said to have first introduced the modern system of bee-keeping into Ireland.

ADDITIONAL BEE-TENT ENGAGEMENTS.

Worcestershire.

Aug. 6, Pershore Athletic Sports and Horticultural Show. Aug. 8, Astwood Bank Horticultural Society. Aug. 15 and 16, Worcester City and County Horticultural Show at Pitmaston, Worcester. Aug. 18, Kidderminster Horticultural Society. Aug. 23, Ruabury Flower Show.—A. H. Martin, *Hon. Sec.*, Worcestershire B. K. A.

Foreign.

GERMANY.

The census in Prussia, Germany, of 1883 shows a decrease in the number of colonies of bees kept since 1873. The whole number of colonies kept in 1873 was 1,461,055, and in 1883 are kept 1,232,231 only, a decrease of 228,824. Mr. Suppea, a well-known bee-keeper, feels quite disappointed over these figures. He says that they are a scorn and sneer in the face of all the work done by the different bee-keepers' societies, and all methods set forth in many manuals on bee-keeping toward the advancement of apiculture. Probably these figures are a judgment on all the new-fangled bee-houses and foreign bees, or the result from low duty on foreign bees. C. J. H. Gravenhorst thinks as a reason why bee-keeping has not been successful with many is, that there is no law protecting bees from the many dangers they are exposed. Lawsuits over the keeping of bees increase from day to day. Birds, although their benefiting the public is sometimes very doubtful, enjoy such a protection, why cannot bees likewise enjoy such a protection? At present there is a project of such a law, with 16,000 names of bee-keepers appended, before the Reichstag, urging the same to be adopted as a law.

AMERICA.

Bee Stings: Their Treatment.—For the defence of their treasures and themselves bees are provided with stings and a virulent poison. The sting is about one-twelfth of an inch in length, and to the naked eye appears to be round and to consist of only one part. Under the microscope it is found to be exceedingly smooth, and to be composed of three parts, which give it a triangular shape—something like a three-cornered file with the corners partially rounded off. Two of the prongs, or parts composing the sting, are barbed near their ends, and powerful muscles at their base push them forward, alternately, with a quick, sliding movement, while the third prong, which is barbless, partially encloses and keeps the other two in place. The sting terminates in a point so sharp as to be scarcely discernible with a microscope, and its power of penetration is so great that it can readily pierce a felt hat or buckskin glove. The shape and arrangements of the three parts composing the sting are such that a hollow is formed in their centre, through which flows the poison from a small sac at the base of the sting. A bee, upon thrusting in its sting, immediately attempts its withdrawal. This is prevented by the barbs, and, in the bee's efforts for freedom, the sting, poison-sac, and muscles are torn from the bee's body. This separation, however, does not immediately impair the vitality of the sting, as its muscles continue their action, burying the sting deeper and deeper, and, with each contraction, forcing into the wound an additional portion of poison. As the poison is an acid, the application of an alkali, like soda or ammonia, has been recommended, and in some instances, perhaps, such applications have done good; but the professional apiarist never thinks of using any remedy for bee-stings. By the continual use of a poison, such as alcohol, opium, or arsenic, the human system becomes so inured to it that large doses may be taken with impunity. So the system of the bee-keeper, who is stung more or less each day of the season, becomes so accustomed to the poison that he suffers little pain or inconvenience from stings. A few persons are so peculiarly constituted and are so susceptible to the poison, that it is doubtful if their systems could ever become inured to it; while a few others, after having apparently become accustomed to the poison, again suffer under its influence, but suffer in a different manner. The throat, trachea, bronchial tubes, eyes, and eyelids, become swollen and inflamed, itching, smarting, and stinging intolerably.—W. Z. Hutchinson, *Genessee*.

BEES AND FLOWERS.

An unusual number of wet, cold, and stormy days in July deprived bees of the opportunities of extended flight, and amongst other drawbacks was the loss of valuable moments, when the sweets of the lime-blossom could have been culled at their best yielding period; the value of good bee flowers, grown at a convenient distance from the hives, and so readily accessible when even a partial gleam of sunshine tempts the occupants of the hives to venture out, has been again demonstrated. Borage has bloomed well, and is invaluable in damp weather, when many other flowers are charged with moisture; and bees have not been slow to take advantage of its drooping blossoms. Buckwheat is a fine-weather plant, and is never without bees at such a time; the great abundance of its flowers, their ready accessibility, and good honey-yielding properties, make it a plant of the first importance to bee-keepers. *Phacelia congesta* seems to have tempted bees more this than in other seasons, their disregard of mere sweetness has again been shown in regard to Sweet Alyssum. *Iberis* and Virginian Stock: only stray bees have alighted on the broad patches of gleaming white and pink of these plants, and of a fragrance perceptible at a long distance. The tall, white willow herb, *Epilobium*, is constantly visited, but no plant has been more constantly sought for than the new Persian Clover; the small, fragrant heads of pink blossoms are produced in the greatest abundance, and if the orange-blossom sweetness which it exhales is communicated to the honey gathered from it a new and delicious quality will be given to that product.

A common weed, *Teucrium Scorodonia* (Wood sage) was pointed out to me in Perthshire two years ago. I have now a mass in full bloom, and it is in as much favour with my bees as it was said to be with those of the Highlands. I was assured emphatically that it was the best autumn bee-plant they had. It is, of course, much easier to grow native plants than exotics; and if we can fix on any British plant of assured value for its honey-yielding properties, it would pay to extend its cultivation. *Scrophularia nodosa*, though particularly unattractive, has properties that tempt bees to visit it with frequency. Wild Thyme, *Thymus serpyllum*, is another instance of a good bee flower afforded by native plants. Humble bees are unusually numerous this season, and are very quick to discover the best nectar-giving flowers; they pervade borage, clover, wood sage, but they appear to pay a heavy penalty for their fondness for lime blossoms, their little black bodies strew the ground beneath the limes.—W. Ingram, *Belvoir, July 25th.*

The Giant Balsam, a Good Plant for Bees.—Respecting the honey-yielding properties of this plant, we would recommend those of our readers who keep bees, and who have not hitherto grown it, to introduce it into their gardens. Of its honey-yielding properties, and that our busy bees are immensely fond of it, there cannot be any doubt whatever, judging by the number of bees which frequent it when in flower. Looked at from an apiculturist point of view, its value is greatly enhanced by the lateness of the season at which it comes into flower, August and September, for by that time most of the hives have been relieved of their surplus stock of honey, and its flowers stand the bees in good stead by affording them, as it were, a last chance of the season of replenishing the empty cells with a fresh supply of natural food for the winter months, and thereby obviating the necessity in many cases—though not in all—of much artificial feeding.

Correspondence.

**** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of June, 1883, amounted to 3534*l.* [From a private return sent by the Principal of the Statistical Office, H.M. Customs, to E. H. Bellairs, Christchurch.]

FIXING FOUNDATION IN SAW-CUTS.

Much trouble is experienced in getting foundation into the saw-cuts in the top bars of frames, especially at the ends, which cannot be opened wide enough without splitting. The wedge used for keeping the cut open also prevents the sheet going into its place. By laying the sheet of foundation on a table, and with a wetted knife-handle obliterating the cell-walls for about half an inch along the edge, the first difficulty is overcome; and by cutting a notch in the middle of the edge for the wedge to enter, it can be left in the cut until the sheet is arranged properly. A small screw-driver put into the cleft flat and turned edgeways forms a convenient tool for the purpose.—F. LYON.

[A simple and ingenious suggestion.]

SWARMS DYING IN AN UNACCOUNTABLE WAY.

In the parish of Hevingham in the county of Norfolk curious deaths of swarms have taken place this year in the month of June. In two cases of a clergyman and one of a poor person all the bees of swarms have died in a very disappointing way, and it has completely puzzled the minds of their owners to account for their deaths. In each case, after taking the swarms, the bees have been all found dead either on the following or a day or two after. The skeps were quite new, and never used before. They were propped up by a thickish stick in the usual way, so that plenty of fresh air was admitted, and full space allowed for the ingress and egress of the bees. When taken up, and the swarms examined, the bees were found in a very moist state. Bee-keepers in the neighbourhood would like to have the opinion of great bee authorities as to the cause of the death of the bees.

[We invite correspondence respecting the above. See our remarks on p. 120.]

REMEDY FOR STINGS.—BEE-KEEPING IN THE ISLE OF MAN.

Ruddock's Homœopathic *Vade Mecum* says, '*Ledum Palustre* is the most useful remedy for common stings and bites. It should be applied locally in a diluted form—twenty drops of the tincture to half a wineglassful of water.' Next to *Ledum*, *Rhus*, or *lime water*, may be substituted. Failing these, a piece of the common onion promptly applied, and changed every few minutes. *Camphor* is also useful. If there is much swelling, *Apis Mel* should be given. *Aconite* will speedily remove feverish symptoms. I find a small bottle of diluted *Ledum P.* very useful. I keep one constantly in my waistcoat pocket.

In your last number, 'Iona' states in the 'Echoes' column, that bee-keeping is at a low ebb in Mona's Isle. Two years ago, whilst walking from Laxey to Douglas, I noticed two bee-hives on top of bean-poles 4 ft. from the ground, and I am sure they could not hold more than a quart—bees, combs, honey, and all.—WILLIAM BERRILL, *Ridgeway, near Chesterfield.*

BUCKWHEAT HONEY.

The bees were having a lively time up to the 13th of the month, and extracting had been going on and full sections taken off, when a cold wave set in, and since the above date all has been at a standstill. I had a curious experience with the last honey I extracted: on opening the hive to do so, an intensely strong, almost foxy, smell, came from the warm bees, and the combs gave honey the colour of treacle. You may imagine my disgust at my bees collecting such stuff when I had, as I thought, four or five acres of white clover within sight. I thought of foul brood, looked, and could not find it; I showed the honey to experienced men, who looked wise, but could not help me; I had the expert, but he left me no wiser, till talking with a neighbour of it, and I said what a pity my bees would not go to that clover, pointing to the white field in the distance. He said: 'That isn't clover, sir; it's buckwheat;' and the murder was out, and I went home to turn to my 'Quinby,' and there read of the merits and demerits of buckwheat honey. Breeding is still going on, as the bees get just an income; but if this cold, blustering weather lasts much longer, feeding will have to be resorted to; but I still have hopes that wood sage and golden rod may bloom in gathering weather.—JOHN MARTEN, *Dunkirk, Faversham, Kent, July* 23.

CANDY.

I should be glad to get your opinion of candy for feeding bees in winter. Having only lately got 'a Bee in my Bonnet,' I am ignorant of the information in previous numbers of the *B. B. J.*, as I have only just commenced taking it. I was much struck with Mr. Hewitt's letter on the subject in your last issue, and shall be inclined to introduce candy into my hives (in the manner he mentions) in the autumn if your verdict is a favourable one, as I quite see that if candy is equal to syrup as a food, it is much easier managed, as with syrup you not only have to cut your quilt, but you have also to look to your feeder—if it is an ordinary bottle with calico for a strainer—occasionally, to see that it has not got clogged, or to wash out your strainer if it has. Now, with candy slung to a bar you might, if you like, leave your hive undisturbed from October to March or April, and still feel perfectly satisfied that all is well inside. Might I ask Mr. Hewitt how his candy is made, and what the empty comb between the candy and dummy is for?—CORNUBIA.

[Mr. Hewitt has forwarded the following communication:—]

FEEDING, GRANULATING OF HONEY, STIMULATION CANDY.

As the period for feeding is drawing near, and as the various systems in vogue are not in accordance with my experience, I think my views on the subject will not be out of place.

Firstly, I recommend the lightest-coloured West India or Demerara sugar to be used in all bee-foods; true, it will not make as much stiff syrup as lump, but it will go farther, and the bees will raise healthier brood with it, probably from the fact that it is sweeter, as may be proved by converting it into alcohol.

Secondly, never use vinegar or acids; all I use besides pure water is a very small pinch of salt, say a level salt-spoonful to 12 lbs. of sugar.

To make a stiff syrup put one quart of water and the salt in a clean pan, boil it, then add 6 lbs. of above sugar, and stir until all is melted. Watch carefully until it boils, as it may boil over, and when the froth has sub-

sided get the fire quite hot, and boil as violently as possible for half a minute; then take the pan off the fire and cover it over with a thick cloth, in lieu of the lid, until it gets quite cold, when it is ready for use. This syrup must not be fed from a bottle or any feeder in which air has to pass through, or it will crystallise. A typical form of feeder is Neighbour's No. 101.

There seems no limit to the time this syrup will remain in a liquid state if air is kept from passing through it. The object in boiling the water first, and boiling the syrup violently afterwards, is to drive all the air out; and if the pan is not covered air gets to the syrup, and when cold it will be found crystallised on the top in the form of an ice film.

Thinner syrup must be made in the same manner, only a lesser quantity of sugar. I never use less than 4 lbs. of sugar to one quart of water.

Whoever will use this syrup in competition with others will never afterwards use any other, and will quite understand why extracted honey, which gets well aerated, granulates so quickly, while that in the comb remains liquid for months.

Stimulative Feeding. — I cannot condemn the practice too strongly, between the end of August and the end of April, as you simply replace your strong, vigorous bees with weak, sickly ones, which have been produced in cold weather, and have not been properly 'brooded' in their infancy; whilst the old bees are worn out in the endeavour to raise the necessary heat, or leave the hive for a cleansing flight, or with empty stomachs in search of food, never to return. If these old bees (which have done duty as nurses) can be kept quiet and idle, they will by their presence keep up the heat of the hive during cold weather, and do their share of work on fine days. I have kept bees alive from August 26th to June 8th—9½ months—by simply keeping them quite warm and dry, which fact should do away with the need of artificially raising young bees, being, at the best, simply a waste of syrup, time, energy, and queens. I expect these remarks will be questioned by some old authorities, but for answer I will appeal to honest bee-keepers who tried it last autumn and spring; I know many that were either killed right off or reduced to next door to it; whilst every black or crossbred stock with plenty of stores, which was simply 'let alone,' came out well.

I shall try candy, mentioned on page 98 in future, and will give the receipt of how I intend to make and use it, as follows: I shall take an ordinary frame, and with a bradawl, bore holes through centre of top-bar, sides and bottom, about 1½ inches apart, and then thread with twine crossways through them, the same way a riddle is wired; this twine is to keep the candy, or pieces of it, from falling out of frame whilst the bees consume it; lay the frame on a piece of clean paper on a level surface ready to receive candy. To make it, get a clean pan—you will require a large one, as it will boil into a froth—put in half a quart of cold water, a small pinch of salt, and a level tablespoonful of best wheat flour; the flour should be made into a thin paste, free from lumps, first with and added to the cold water; now put it on the fire and boil, then put in 6 lbs. of the West India sugar, stir away—a broad, thin stick being the best to use—keep boiling and stirring until small bits of it dropped into cold water set hard; then take it off the fire and stir as briskly as possible, until it becomes 'pasty,' when it must be immediately poured into the frame prepared for it, and made level on the top with the least loss of time, as it will quickly become hard; when quite cold, bore about four half-inch holes through it, so that bees may freely pass from one side to the other, and with a sponge damp the paper slightly, when it will peel off and be ready for use. If it is anyways 'pasty' it has not been boiled long enough, and should be reboiled, or it may be hung up in a dry, warm room until it gets dry, or, if bright and not 'sugary,' it has not been stirred enough after lifting off the fire, and must be reboiled.

I would give one 6-lb. frame of this candy to six frames well covered with bees about the 20th of September, removing as many combs without brood as possible, and extracting the honey from those which do, putting this frame of candy well amongst the bees and one empty comb—to keep candy warm and bees from being chilled—on the outside of it. By this means I should stop breeding at once, the young bees would get well brooded, and a cleansing flight before cold weather set in, and the candy would keep them alive without much loss of energy or bee life until the middle of March, when more candy can be given, or the frames containing honey (removed in the autumn) replaced one by one in exchange for any empty combs, keeping bees crowded as close together as possible. This is the only kind of spring feeding I would recommend before May, which should always be done in the early part of a warm day. This candy will keep in a dry room for years, so that a stock of it in frames ready for use should always be at hand.

As I have said, my experience of it only extends to two stocks last winter—which were not mine—but such faith have I of it that I shall hang about all my stocks up on this candy-peg the coming winter, for besides a great saving of sugar, time, and patience, I look on it as a sure specific against dysentery and spring dwindling; also a great conservator of bees' energy; and will be a means of having strong early stocks with the consequent profit thereon.—John Hewitt, *Sheffield, July* 26.

EFFECTS OF BEE-STINGS.

On July 16th, at 3 p.m., I took a heavy super off a very strong and pugnacious bar-hive famous for their stinging propensities, not having used any smoke. I transferred the super to a wheelbarrow prepared for the purpose, and took it about fifty yards away, followed and covered by an angry multitude. One of them stung me through the trousers. I placed the super under a tub, and prepared to put the hive to rights, when a most extraordinary sensation came over me. I felt as if stung all over—severe irritation all over my head and body, and what looked like nettle-rash suddenly appeared on my arms and wrists; my face swelled and got quite red, and I had an unpleasant sensation in the throat. I used a veil and double gloves, and have often been stung before, but never experienced anything like this. The heat and irritation gradually subsided, and the nettle-rash (or whatever it was) suddenly disappeared at 7 p.m. Having now found out that they can sting through the trousers, I must put on some oilskin overalls for the future.—Fitzroy Clayton (Colonel).

EXTRACTING RIPE HONEY.

Mr. Cowan's ingenious and valuable 'Honey Ripener' is all very well to those who can afford to buy it; but to those who cannot, a simple way to take ripe honey would be of use, judging from the queries of various correspondents, so perhaps my way or doing it might be acceptable to such. From observation I have found Pettigrew's theory 'that bees collect honey in the day time and evaporate and store it up at night' practically correct; so I simply extract first thing in the morning, before bees get to work, when I have never failed to find the honey *quite ripe* and fit for bottling off. In very hot bright weather bees bring in the honey quite ripe, as I have several times been satisfied of the fact, and when such is the case the extractor should spin merrily round next morning through every stock.—John Hewitt, *Sheffield, July* 24.

BEE-KEEPERS AND THEIR LOSSES.

Last summer I had twenty colonies, and took a fair amount of comb honey. In the autumn they had not much in brood combs for winter, but as the *Journal* had taught rather strongly the advantages of early spring stimulation I concluded to try it, and accordingly wintered them. All came through nicely into March, when the feeding so much lauded came into practice. Flour candy was given for a time, then syrup, fed continuously in regular quantities, until honey began to come in. Pea-flour as well, to crown all. I had the pleasure of seeing the whole apiary dwindle from twenty to six, in spite of all that could be done, when cottagers who kept bees in skeps, and neither knew nor practised any feeding whatever, had them come out strong in spring. Experience teaches wisdom. In future I shall leave them sealed comb enough to carry them through until natural pollen is plentiful, feeding gently then for awhile. They will be packed in the middle of hive (Combination), with a dummy on either side, with a flat zinc tunnel to entrance, covered with quilt and oat chaff; entrance shaded and kept as quiet as possible until spring. This method will surely equal that of skep wintering, which, in my opinion, is difficult to excel.

Have any of the readers of the *Journal* tried Quinby's 'Bee-yard,' to control swarming? I intend to try it next summer, if no unfavourable opinion is passed upon it by experienced apiarists, as any one who is running hives for comb honey cannot leave them with an easy mind in swarming-time. The 'Yard' may be termed an open-top box, 6 to 20 in. square by 4 in. or so high, with a ledge say 1½ in. wide tacked on the top all round. It admits of workers or drones taking wing, but is said to stop the queen, who cannot pass the projecting ledge. It seems feasible. I shall be very glad to hear an opinion. The object in view is certainly worth a little trouble.—JOHN C. LAMBERT, *Sunk Island, Hull.*

DEAD AND DYING BEES.

Two days ago I took the surplus honey of one of my strongest stocks. After the operation I put everything straight again in the usual way, and having satisfied myself, moreover, that the queen was all right I shut the hive up. The bees in this instance were more excited than usual after such operations, and would not settle down, not even after nightfall, clustering round the entrance. Next day, from the early morning, they turned out a great many dead and dying bees, about as many as would form a middle-sized cast. I am not a novice in bee-keeping, but have never had, nor heard of, a similar occurrence. Could you or any of the readers of the *B. B. J.* give me an explanation on the subject in one of your next numbers? I may add that I never make much use of smoke.—FERD. ZEHETMAYR, *July* 24.

[We have had a further communication from our correspondent, dated the 26th July, in which he states that 'the bees of the stock mentioned have continued to turn out dead and dying bees; and if they go on at the present rate, one of the finest stocks of bees I ever had will have gone within another five or six days.' A few years ago we had a very similar case before us, where the same degree of mortality occurred, and where there was the same difficulty in discovering the cause of the fatality. In that case, after a lengthened correspondence, it was satisfactorily (?) proved that the death of the bees had been occasioned by their desire to make an exit through a window which had been left undarkened in the rear of the hive. They were unable to effect their purpose, and the result was that they fell down daily in great numbers, suffocated. As the present mischief is apparently in the interior of the hive, might we request our correspondent to observe whether some such oversight may not be the cause of the sad occurrence?]

RETARDED HATCHING.

On 11th July, I made up some nuclei, each with two frames of hatching-brood and bees. From one, so many bees flew home as not to leave sufficient to cover the brood, which consequently did not hatch. However, as I wished to hatch the queen (a Cyprian) if possible, I left them alone until the 19th, when I gave the combs to another lot, fully expecting the brood to be dead. I find to-day, 21st, that it is hatching, but the bees are curiously deformed, the wings being apparently undeveloped. I send some for your inspection. The brood would have hatched in the ordinary course from 11th to 14th or 15th, so that it has been retarded without actual death for 6 to 10 days. On p. 53, Vol. iii., 1875, *B. B. J.*, a correspondent inquires the reason of the appearance of bees with wings 'as though they had been singed with a flame;' this exactly describes the appearance of these. 1875 was a very cold and wet season, *Punch* wrote

'I remember, I remember how the summer fleeted by,
With the cold of its December in the middle of July;'

and possibly those deformed bees were produced by the sealed brood not being kept warm enough for perfect development.—F. LYON, 94 *Harleyford Road.*

[We have received the bees; they are as described above. The anterior or front wings are lacerated and ragged, while the posterior ones are not apparent at all. These observations are of great service as contributory to the history of the bee, and we are much gratified that we have so many vigilant bee-keepers who take note of such aberrations.]

AGE OF QUEEN WHEN FERTILISED.

The following fact may be interesting on this subject. On the 16th of June I drove a first swarm from a skep; on the 7th July, twenty-one days afterwards, I turned out the stock and put it into a bar-frame hive, giving both combs and foundation. On the 13th July I examined the hive and saw the young queen, but she had not begun to lay, although there was abundance of comb empty and drawn out. Examining again on the 18th, there were a good many eggs, but no grubs. Unfortunately, being busy, I was unable to ascertain the exact time she began to lay. The queen must have hatched out on the 30th June, and thus had not begun to lay thirteen days after hatching. —D. E. L., *County Waterford.*

OBSERVATORY HIVE.

I have waited hoping some abler pen than mine would have answered 'Ebor's' query in your *Journal* of June 1st, as to a few plain and practical instructions for making and managing a simple, cheap observatory hive.

I confess a thorough lack of ingenuity in converting old boxes into an observatory hive. True, some old boxes may be made to answer, but, in my judgment, only as a bad makeshift, for an ordinary bar-frame hive. But competition has brought the price of the latter within the reach of even the second-class *bonâ fide* cottager, so that all the instructions and ingenuity to follow them, with 'plenty of paint and putty,' well worked into the cracks and joints, is only so much misapplied energy. Personally, I have a weakness in setting especial value on my own labour; and it was always my delight to make what I could for myself, whether it be an article of furniture or something in the way of hobby, so that I never found any very great difficulty in working wood, metal, or stone, so that whether it was a kitchen table, a garden wall, marble mantel-shelf, or a tin pot, all alike yielded to perseverance without having resource to 'bodging.'

If 'Ebor' really wishes to own an observatory for the purposes he names, and will say what kind he requires, and how many standard frames he wishes it to hold, I

will endeavour to write instructions how he might make one; and who knows how many bee-keepers may not, as a result, become such skilful observers, as to rise to the sublime height of benefactors—at least to bee-keepers?—AMATEUR EXPERT.

TO ENSURE STRAIGHT COMBS.

Nothing makes the bee-keeper more happy than when opening a hive he finds every comb perfectly straight within its frame from side to side and top to bottom. When whole sheets of foundation are used and no means taken to prevent their warping by heat or otherwise, they are not worked out perfectly interchangeable; but the following simple method, applied to 30 lbs. of foundation this season with complete success, may be interesting and worth a trial by others who have been annoyed in this respect. Having inserted the sheet of foundation, pass a carpet needle threaded with double thread or crochet cotton (moistened) through a hole previously made in middle of frame-end, about one inch from bottom of wax-sheet; put one end round frame, and tie both ends together; then continue the needle through corresponding hole in other frame end, leaving a thread on each side of the sheet, draw tight into and around a notch on frame end, cut off close, and the wax-sheet will be held in perfect plane in centre of frame. No curves are possible in the combs if this plan be followed, whilst it will be found that in a few days the bees have fixed the sides and eaten away the threads.—S. F. CLUTTEN, *Whittingham Hall, Fressingfield.*

READING-ROOM.

Many members have expressed a desire that a central place of meeting should be established, where bee-keepers may meet in conference, and where the extensive library of the Association may be consulted with greater facility than can now be had. To these wants may be added the want of a museum for specimens illustrating the natural history and variety of the bee tribe, its friends and foes, &c.; and a central depôt where bee appliances may be seen and examined without the necessity of purchasing. All these unquestionable advantages could be had if there were provided a suitable room for the purpose, to be under the control of the Central Committee, and open to all such persons (bee-keepers) as might be admitted as subscribers. It must, however, be understood that the funds of the B. B. K. A. are all too small to provide it, and cannot in any way be drawn upon for the purpose. The funds must be furnished by private subscription of the members. The charges cannot, under proper management, exceed fifty pounds a-year after the first charge of furnishing, and would be met by a subscription list of two hundred members at 5*s.* each per annum. I will open such a list, and shall be glad to receive names of all members of the B. B. K. A. or County Associations, who will express to me their willingness to join in the undertaking as subscribers—say, for three years certain—and I will, from time to time, announce, through the *Journal*, the progress of the scheme, with the number of subscribers. As soon as a sufficient number of names is received, steps will be taken to secure a room, and to arrange a proper set of rules, under which the reading-room may be made useful for the purpose intended. As to the first charge for furnishing, &c., I should look for special subscriptions, towards which, no doubt, many of the County Associations would contribute. I do not propose that any hives or appliances shall be sold at the depôt, but they might be exhibited there, with price and address affixed, a small rent being paid to the institution for this accommodation.—DUNCAN STEWART, *Knockholt, Sevenoaks.*

P.S.—I would ask all who have facilities for it to begin at once to collect the natural history specimens, including dried specimens of bee-flora.

Echoes from the Hives.

Devonshire.—The beginning of June was everything that could have been desired for bees in the county; sections were being rapidly filled and honey was plentiful, swarms in some districts were numerous. But about the 15th the weather altered, cold and rain setting in, which slightly blighted the prospects of a good harvest; and so detrimental was this to the honey yield, that from some parts of the county came the report of the bees clearing and uncapping the honey in the top sections for the daily consumption of the colony. The rain account for June was—total fall, 2·60 inches; most in twenty-four hours, ·54 cents on the 27th. Number of wet days, 16. The same month last year there were 4·33 inches.—W. N. C., *Hon. Sec., D. & E. B. K. A.*

North Leicestershire.—Seventeen out of the first twenty-two days in July were rainy, but during the first week temperature was high, and bees did well on clover and limes. After that cold winds set in, and there is now little hope of a large honey harvest. Supers are generally only partly filled and many sections remain unsealed. Late swarming has been a vexatious source of disappointment.—E. B.

Sheffield.—We are having some awful weather here; nothing but cold, cloudy, or wet days, so that stocks are getting quite honeyless. Most of my stocks, having fertile queens, have killed off the drones, but have not touched the drone-brood; and one hybrid stock of Syrian blacks, which are crammed between fourteen square feet of combs, killed off the old drones, leaving the newly-hatched ones and the brood untouched. Limes are out, but a second crop of white clover is not in yet, farmers not having got in their hay.—JOHN HEWITT.

Sussex.—With us July has so far been almost honeyless. For two months from the middle of May, we had not enough rain to moisten the ground, which towards the end of June became so baked that nothing could thrive. White clover seemed dried up, and the usual wild flowers were almost as bad. Recently, however, we have been having some splendid showers, and the clover is coming along nicely, though nearly a month later than usual, so that when the weather is again settled we hope for another good crop from that and other sources, before the season closes. The prevailing wind has been S. S.W. I have several hundred plants of the Canadian Balsam just coming into bloom, and believe it will prove one of the best of autumn crops for honey. Each blossom produces a full 'bee-load' of honey at a time.—S. S. *Rottingdean.*

Cornwall, July 19.—It was generally thought that last year was a horribly bad season for honey, but this year bids fair to be still worse in Cornwall. A cold spring has been followed by almost daily rain, and as a rule stocks, though strong in numbers, have not only been unable to store any surplus, but have even consumed what store was left over from last winter. Up to the present we have only had six days this month entirely free from rain, and during the first fifteen days the quantity which fell was 1·59. As I write it is still overcast, and anything but settled. Bee-keepers are not the only class suffering in Cornwall, and it may, perhaps, be some consolation to them to know the farmers are bearing them company. We have acres of grass cut and rotting on the ground, whilst a great deal is spoiling for want of cutting. Disease is showing itself in the potatoes and rust in the wheat. In fact, a doleful look-out all round.—CHAS. KENT.

South Cornwall.—The agri-, horti-, and api-cultural prospects combine to make as cheerless a look-out as can well be imagined. Six weeks of mist and rain, off and on, have sodden everything, hay, corn, grass, bees, hives, flowers, fruit—all. The position seems to be this.

There has been heavy brood-rearing during the muggy weather, with just sufficient income of honey to keep all alive. At the present time grubs are being ejected. If it *promptly* clears, and we *soon* get bright sunshine, much honey may yet be gathered, otherwise—why, the prospect is too dismal to contemplate.—C. R. S., *July* 20.

North Wilts.—I sent you my last report exactly a month ago. During the interval the weather has been decidedly unfavourable; and there have only been seven days without rain. The temperature generally has been unusually low, and but little honey has been secreted. On some of the days on which no rain has fallen, there was very little sunshine, and but few bees were abroad. Nearly three inches and a half of rain fell during June on twenty days; and in this month there have been several thunderstorms accompanied with hail. The quantity of rain which fell yesterday was ·85. I have taken a little honey in sections from two hives, about 15 lbs., and there are about a couple of dozen unfinished sections which will not, I expect, be further added to; for I have to-day for the first time noticed that the drones are being turned out: and this is an indication that the honey harvest is at an end. A neighbour of mine told me this afternoon that he could not get his bees to take to the supers; but this is to be explained by the fact, that he has allowed too much swarming, having increased his stocks this summer from five to thirteen. I hear of all sorts of difficulties on the part of folks who are commencing with bar-frame hives; and it is difficult to set them right with advice only, unless you can follow it up with a personal visit. A lady friend of mine, living near here who is by no means afraid of her bees, fixed her guide-comb insecurely in the bars, and in consequence the combs are built so as to ensure 'fixity of tenure.' I have promised to see what can be done to put things straight. Another inquiry made of me within the last few hours was what could be done with supers full of brood? So that there is plenty of work for a county secretary, or for his district assistants, at any rate in this neighbourhood: and I doubt not also in others.—H. B., *July* 21.

Essex, July 21st.—We have had beautiful weather up to the middle of the month, when excessive cold set in, and continues. Honey has been taken in fair quantities, 63 lbs. from one hive being the largest quantity I have heard of; the propensity for swarming has been pretty general in this neighbourhood, consequently large quantities of honey could not be expected. In my own apiary 2-lb. sections have prevented any desire to swarm, but all my hives supered with 1-lb. sections have swarmed. On June 1st I gave my first swarm to a neighbour, and placed it in a bar-hive for him; on July 1st a maiden swarm issued, and eleven days after a cast, which was returned—of course they should have been supered. I am pleased to say our work in the Bee-tent is bearing good results, one man who visited the Tent last year tells me he is now a bee-keeper (and from his conversation I imagine he has lost no time in gaining information). On May 24, he hived a swarm in a bar-hive, on 12th July he had taken forty-four 1-lb. sections and could take twelve more. The honey season I think we may consider as over. The destruction of drones commenced with me on the 14th.—G. H. A.

Oxfordshire.—Bee-keeping in this neighbourhood North Oxfordshire, is looking decidedly down at present. From the beginning of May until middle of June, the weather was bright and an abundance of honey was collected. From latter time until this date, 19th July, excepting a short break at beginning of the month, the weather has been as unfavourable for bees as it is possible to imagine: they almost never leave their hives except to swarm or for a midday flight, but cluster sluggish and inactive at hive's mouth and probably not a single pound of honey has been collected by the workers of now forty hives for a period of five weeks barring the five days referred to, honey in my supers diminishing in quantity; and although limes are now in blossom, weather too cold and gloomy for work. To make matters worse, swarms came so late, that for the present season they are worthless, and must be liberally fed if they are to survive. My own stocks, in number twenty-two, bred marvellously, and yet not a swarm issued until 17th June, after which time until this day, 19th July, swarms and casts have followed fast upon each other, notwithstanding that I gave abundance of room, and still a large proportion of the hives contain much brood.—E. H. R. *July* 21.

P.S.—Weather to-day improving, bees active.

South Cambridgeshire, Sawston, July 23rd.—At the beginning of July there was every prospect of a bountiful honey harvest in this district, all bee-keepers being full of hope that they would have a successful year, and get well repaid for their trouble and stings. But before a week was gone the weather began to change to cold and stormy, and up to the present time of writing I don't think we have had a day without being stormy or the wind blowing a fierce gale. Supers are filling very slowly, the bees seem to do their work very slovenly now that this change of weather has taken place. In several apiaries here supers have been taken off some of the strongest stocks, but in the apiaries were stocks are not very strong there is no chance for the bee-keeper in getting his supers filled this year.—A. S. B.

Somersham, Hunts, July 24.—The weather since my last 'Echo' has been cool, cloudy, and showery. From this immediate neighbourhood no good news yet. Limes about over, but they have hardly ever been visited by the bees. I shall have an opportunity of giving the honey-producing power of mustard a good test, as I intend putting several strong stocks in a field of mustard. Good news comes to me from other parts of the county: a bee-keeper near St. Neots expects having half a ton of honey by the end of the season; another at Huntingdon says, 'Had the weather been fine for the first fortnight of the present month, I believe I should have had 100 pounds per hive, as it is I have done well.' Yes, that he is; I saw his bees last Saturday, and they are still filling sections fast and giving a large quantity of extracted honey.—C. N. W.

Leamington, Weston, July 25th.—The first part of the month has been very good for honey-gathering, and even up to about the middle of the month has been fair, so much that I have had many swarms; and where they were working in supers I had several swarms 9 and 10 pounds nett weight; but this last few days have been showery, and several days when it was not wet have been so dull and cold that the bees could get but very little; if we do not get a change soon our honey harvest will be cut short, though it has been far better than it was last year.—JOHN WALTON.

Ireland, Bray, 25th July.—In this part of Ireland the weather has been most unsettled and rainy since 10th June, and all hives that had not a large surplus then require feeding now, or almost all brood is destroyed. With me this year has been much worse for bees than last. Though my bees have acres of white clover (now nearly out of flower), they have been unable to store a pound; and though the heather has been in full flower for the last week within quarter of a mile of them, drones have been destroyed in almost every hive. —E. D'O.

Dublin.—Rain, rain, rain—nothing but rain. Such has been the weather for the last six weeks, and if a change does not take place, all hopes of surplus from the white clover may be given up. Sections were getting well filled up to the end of May, but since then in fact the bees required feeding. This is but poor encouragement to those commencing bee-keeping this year, as numbers are here, and most of whom, I am afraid, will lose their bees in the winter from starvation.—J. P. ALLEN.

Queries and Replies.

QUERY No. 660.—*Desired Increase of Stocks.*—I made an artificial swarm from a bar-frame hive last week. I took the queen with the swarm to a new stand. When could I make another swarm from old hive, strong with bees? could I swarm the old hive twice yet? Increase of stock I want.

REPLY TO QUERY No. 660.—The artificial swarm was made correctly; but as the old stock will not have a fertile queen for at least three weeks, it will be too late this season to increase again with any safety. What better or more humane way of increase can there be than driving the condemned bees of cottagers?

QUERY No. 661.—*Bees not occupying Supers.*—My bees swarmed on June 2nd; one hive throwing off two swarms. On June 12th I put on supers (bar-framed), and although there was some clean empty comb from last year in each, the bees have not gone up at all into them. Can you suggest any reason?—A SUBSCRIBER.

REPLY TO QUERY No. 661.—Bees that swarmed ten days ago are in no condition for supering. We should suggest a sheet of pea-flour candy at the back of each hive, and supering when the bees thoroughly cover ten combs. Sections placed at the back of the hive are more readily taken to than those placed on the top.

QUERY No. 662.—1. *Grubs on Alighting-board.*—What is the cause of grub skins on the alighting-board occasionally in the mornings? Do the grubs change their skins? 2. *Robbing.*—Would an empty sugar tierce about a dozen yards from the hive cause robbing? It (the tierce) was literally swarming with bees to-day. 3. *Earwigs.*—I noticed lately a few earwigs outside the division-boards; how can I banish them? 4. *Supering.*—I have a hive of an old pattern, which will not admit of sections being worked in the body of hive. What is the best means of inducing the bees to work in the supers? I cut out some brood, stuck it in a section, and put it in its place; but to no purpose. I use excluder zinc; could that have anything to say to it?—A. W. W.

REPLY TO QUERY No. 662.—1. Grubs on the alighting-board is usually a sign of starvation, and the bees will sometimes eat the larvæ and leave nothing but the outside skin. 2. Leaving sugar near the apiary will be sure to cause robbing, but at this time of the year with plenty of honey flowing, the robbing will not be dangerous. 3. We have never found earwigs do the least harm to a hive, and should advise no notice being taken of them. 4. Raise the super $\frac{3}{8}$ths of an inch from the frames, and the excluder will not be required. The queen will nearly always respect this distance, but the probable reason for their not going up is want of strength in the colony. Place a sheet of pea-flour candy at the back of the hive.

QUERY No. 663.—1. *Reducing the Thickness of Comb.* My bees build the combs of very irregular thickness; one was as much as $2\frac{1}{4}$ inches thick at one end, even though they were supplied with foundation; the next combs on each side were consequently uncouth, one-sided things, and the result of course is that the frames cannot be changed, but the same order has always to be adhered to. 2. *Ventilation in Winter.*—Several writers lately in *B. B. J.*, (*e.g.*, Mr. Hewitt), say that ventilation is required in winter; how is this managed? In Cowan's *Bee-keeper's Guide-book* (2nd Ed. p. 27), the whole of the air-spaces, and top of the hive are shown filled and covered with chaff. Also I understand that one point in Blow's Anglo-Cyprian hive is that the bees winter so well in a 'practically sealed chamber.'—R. E. C.

REPLY TO QUERY No. 663.—1. Take a sharp uncapping knife and pare the combs the correct thickness, when the bees will seal them over *just where pared;* if the honey is uncapped and extracted from the thin ones, the bees will build them out the right thickness, when all will be straight and interchangeable; the honey from the parings can be strained for use. 2. On modern hives, ventilation is arranged for in winter by means of quilts, chaff-cushions, &c., which are porous and allow perspiration and warm air to pass through as anyone will understand who has worn a common mackintosh coat; but many hives (made by people who ought to know better) are fitted with impervious roofs, or just two $\frac{3}{4}$ holes covered with wire cloth; consequently, the perspiration has condensed and fallen on the quilts, making them damp. The 'breath of heaven' ought to pass freely over all quilts or cushions in winter, and much might be done in this respect by regulating the width of entrances.

QUERY No. 664.—*Lime-trees.—Wild-bees.*—Seeing a Query, No. 659, in your last issue, about limes, I venture to say that my experience has always been similar to Mr. J. Hedding. I hardly ever have seen a honey-bee in a lime-tree, though I have two large ones almost overhanging my hives. The limes are full of insects and wild-bees from morning to night, and the hum which comes is most grateful to the ear, but it is not caused by the honey-bee. May I add this fact, and ask for an explanation. Every year the wild bees die in large numbers under the limes: I could count fifty to-day under one, and each bee seems to be perforated at the end of its body. Has any insect extracted the honey? and what causes so many to die?—G. A. R., *Eccleston Rectory, Chester.*

REPLY TO QUERY No. 664.—In all ages limes have been credited with affording large supplies of honey to our hives. Virgil remarks of the bees, 'pascuntur, passim . . . pinguem tiliam,' and represents his immortal 'Old Coryeian,' as planting limes for his bees. Professor Cook, in his *Manual of the Apiary*, states, 'Early in July opens the far-famed bass-wood or linden, *Tilia Americana*' (of which he gives a sketch, showing that it corresponds closely with our limes), 'which for the profusion and quality of its honey has no superior.' Forty years' experience has proved to us the truth of these extracts; and, annually, during the month of July, we know of no greater pleasure than that of reclining *sub tegmine tiliæ*, and of watching our bright-coloured Italians, and sable English bees, flitting from bloom to bloom, while collecting the nectar from this magnificent tree with its far-reaching, delicious perfume. The reason you have not noticed the honey-bee at work on your limes is probably the prevalence of cold, wet weather throughout the month, which has prevented your bees from foraging. Unfortunately, the month of July is proverbial for its ungenial weather in our climate, and last season, as well as the present, afforded the bees few opportunities of visiting the limes. The wild-bees you noticed beneath the trees were chilled by the cold, and, falling to the ground, became the prey of honey-loving insects. Mr. Ingram, in 'Bees and Flowers,' p. 117, mentions the number of dead wild-bees to be seen under the lime-trees.

QUERY No. 665.—1. *Completing Sections.*—Would it be proper to give extracted honey to bees now, for the purpose of getting them to complete their sections? 2. *Loaf Sugar for Feeding.*—Would not cakes of loaf sugar do as well as candy under the quilts as winter feeding for bees? 3. *Feeder.*—What is the best feeder to hold a quantity of syrup for the purpose of storing it for winter food, where it is only replenished once a-week? 4. *A queenly Queen.*—I have got a Ligurian queen as broad as she is long. She has not laid any kind of eggs since I have had her (three weeks). Would it be well to destroy her, or what should I do?—J. P. A.

REPLY TO QUERY No. 665.—1. Yes, but not for exhibition. 2. No, the crystals of loaf sugar are too hard and large; the candy (not the stony sugar-candy of the shops) is softer, and the sugar in a form in which the bees can take it. 3. For rapid feeding a float-feeder is a good one; you can have the supply as large as you like, provided the bees have only access to a small part.

4. Your queen 'as broad as she is long' must be a natural curiosity. You had better communicate with the seller: we presume she was an imported one.

QUERY No. 666.—*Artificial and Natural Swarming.*—Will there be any danger of an artificial swarm returning to the stock hive if placed on a stand contiguous to the old one? I refer to swarms driven from skeps. A natural swarm would not return to the stock hive under such circumstances. Is the same true of a driven swarm?

REPLY TO QUERY No. 666.—A driven swarm will behave just as a natural one.

QUERY No. 667.—I examined two bar-frame hives today, and found them almost full of bees, but containing little honey. I had intended to extract from a few frames in order to prevent swarming, but could not see a single frame which did not contain some brood. 1. *Bees hatching out.*—Do bees wait until the young ones are hatched out before they fill the cells with honey? 2. *Deficiency of Honey.*—Why is it that there is not more sealed honey, seeing that the bees were well wintered and the frames given according as the bees required them? and will the bees begin now to store honey in the cells which are being vacated by the young bees? The stocks are very strong; need I expect a good honey harvest?—F. M.

REPLY TO QUERY No. 667.—1. The upper edges of the combs about one-third down are generally filled with honey. The brood-nest below is only used when a sudden glut comes on, and it is then proper to extract, so that the queen may have room for breeding. You can extract from frames which contain brood, but take care not to run your extractor so fast as to throw it out. 2. No doubt for some local reason your bees have not gathered sufficient to give a surplus. Unless you have heather within their reach it will be too late when you read this to expect a honey harvest this year. If you have heather and your stocks are strong give them supers.

QUERY No. 668.—1. *Drone-Brood in Worker-Comb.*—I have noticed in one or two of my hives brood projecting at least ¼th of an inch out, which I thought to be drone-brood in worker-cells.. Am I right in this conclusion? and why is it reared in worker-cells? 2. *Artificial Swarming.*—About a month ago I made an artificial swarm. The bees commenced six queen-cells; when these were nearly ready for hatching, I think on the fourteenth day, I made a second artificial swarm by taking out two frames of brood with two queen-cells, which I put into a new hive, and set in the place of the old stock. A few days afterwards I found two young queens dead on the ground in front of the new hive, which I concluded were the two I had put in about a week later. I examined both hives to see if I could find any trace of queens or eggs, but could not. I then gave them combs of brood and eggs from other hives with which to rear new queens. I examined both hives again in three weeks time. The new one I found all right, for it had brood and newly laid eggs in, but the old stock had neither. Can you form any opinion as to reason the first queens were thrown out of the new hive? also what is the probable reason the old stock did not get a queen from the four cells left in? Would it be safe to introduce a Ligurian queen? 3. *Introduction of New Variety.*—I have a desire to introduce into my apiary some other variety of bees. I have none except the common English bees; and as this is rather a cold climate I would like to have a hardy bee that can stand the cold well, but I do not want to have anything to do with those very cross kind, as I believe some of them are very bad to manage. What I require is a good worker and quiet in manipulation; which kind would you recommend?—J. P.

REPLY TO QUERY No. 668.—1. The appearance of drone-brood in worker-cells may be taken as an indication that the queen is getting worn out, and should be replaced by a young one. 2. You most likely overlooked one cell, and so the two superfluous queens were thrown out of the hive containing the artificial swarm. The queen raised in the old stock was probably lost on her wedding-flight. 3. You cannot do better than introduce Ligurians, but when they swarm and the young queens are, as they probably will be, fertilised by black drones, you will find the hybrids not quite so quiet as the pure race. To requeen your queenless stock we should advise you to give them one of your black queens, and give the Ligurian to her stock, as stocks which have been long queenless are rather apt to refuse a queen, and your loss would be less.

QUERY No. 669.—*Bees dying through Starvation.*—I find the last day or two large numbers of the young bees dead out of swarms on the 21st of May and 4th of June respectively. What is the cause of this? 2. *Feeding.*—At what time shall I begin to feed the bees I intend to keep for the winter? 3. *Books on Bee-keeping.*—What is the best, simplest, and most approved work on bee-keeping?—ANNESLEY EYRE.

REPLY TO QUERY No. 669.—1. Your bees are evidently dying from starvation, not having obtained sufficient food for comb-building and feeding the larvæ. Feed liberally at once. 2. September is the best month for feeding stocks before going into winter quarters.—3. The books most useful to you are *Modern Bee-keeping*, 6*d.*, and Cowan's *Bee-keeper's Guide-book*, 1*s.* 6*d.* Both may be obtained of Mr. Huckle, King's Langley, Herts.

QUERY No. 670.—1. *Queen on Matrimonial Trip.*—On the afternoon of Sunday, the 8th of July, a very large bee, which I at first thought a drone, came out of a swarm which I had received on the 22nd of June, and was absent for a few minutes and then returned, this occurring several times. The bee, I am now persuaded, was the queen, the body being very long and pointed. Is this an unusual occurrence? 2. *Drones.*—There were no drones with the swarm, but I suppose they will hatch out some, and when may I expect any brood to come out? 3. *Condition of Queen.*—Supposing this swarm to have been made artificially, would a young queen have been sent me that might not have been impregnated, or would it be an older one? 4. *Fertilisation of Queen.*—If the queen is unimpregnated and lays drone eggs, when they hatch out will she become impregnated by one of them? There are bees near to me, within 200 yards: is it probable that the queen visited them? 5. *Smoker.*—Can you tell me how to make a simple and efficient smoker?—ALVEARE.

REPLY TO QUERY No. 670.—1. The bee you saw was the queen about to take her wedding trip. The swarm sent you was most likely a second swarm; at all events, it was headed by an unfertilised queen. 2. Probably the drones escaped your notice. 3. If artificial, or natural, a young and an old queen also might have accompanied it; and the latter might have perished in mortal combat. 4. This could not have happened; but if there are bees kept so near as you state, in all probability your queen has become fertile. Examine the hive, and if you find eggs and larvæ the queen is fertile. 5. The best and cheapest plan is to purchase a smoker of any dealer in apiarian stores. They are plentiful and cheap enough.

QUERY No. 671.—*Preservation of Honey.*—How long will sealed honey keep in as good condition as when removed from the hive, and what precautions should be observed for its preservation?—M. A., *Essex B. K. A.*

REPLY TO QUERY No. 671.—Honey when perfectly sealed over is air-tight; and if stored in glassed boxes and free from all exterior injurious influences, we see no reason why it should not be conserved for two years. We do not, however, recommend that honey should be kept beyond twelve months. The purpose of the bees is that it should be preserved for less than that time, and it might be wise in us to regulate our conduct by their example. We recently tasted some honey that had been kept for three years with some amount of care; but all flavour of honey had departed, and its taste was undoubtedly acid. Comb honey should be taken from the hive as soon as it is sealed over, otherwise its pure

virgin colour will, through the bees being permitted to travel over it, change to that of a dirty yellow. As the bees evaporate, or ripen, honey by heat, it should be kept in a room at such a temperature that the honey should grow thicker rather than thinner. A temperature of from 80° to 90° would effect this purpose. Care must be taken to prevent the presence of moths.

QUERY No. 672.—1. *Bees not using Guide-Comb.*—I am working a frame of sections in the body of a hive, and in one of them the bees have not used the guide-comb, but built a comb on one side of it. What is the cause? 2. *Moving Hives to Heather.*—Would it be safe to move some hives about a mile to take advantage of the heather? 3. *Silver Firs.*—Do silver firs give any bee-food? I have seen several wasps but no bees on them. 4. *Bell-glasses.*—Does a bell-glass require any preparation before putting on a skep? 5. *Honey-yielding in Dumfriesshire.*—Do you know whether Dumfriesshire in the neighbourhood of Annan is a good district for bees?—E. J. BROOK.

REPLY TO QUERY No. 672.—1. The probable cause is that the section-frame was not placed horizontally and vertically in the hive. If this be not the cause, unless all the circumstances were known, we are at a loss to assign a reason. 2. If the heather is in bloom it will be quite safe, since the bees will not desert in the midst of a good supply of forage. Let the removal be made quietly in the evening, when cool and cloudy, and when all the bees are at home. 3. Silver firs afford no food for bees; but propolis is collected from them, and at times they are infested by a species of aphis, from the excreta of which the bees gather a dark kind of honey, unwholesome as food both to the human race and themselves. 4. The best mode of preparing bell-glasses is to attach a piece, or pieces, of guide-comb by means of heat to the upper part of the glass. A zinc ventilator, through the centre of the glass, is also an inducement to the bees to begin work. On this they are able to gain a foothold, and generally form a cluster upon it at once. 5. We have heard Dumfriesshire highly spoken of as a good locality for bees, but we are unable to give a personal opinion.

QUERY No. 673.—*Shifting Hives.*—1. I want to shift my one bar-frame hive, containing a strong stock, a distance of about six hundred yards. It must be done, as I am changing my residence. 2. *Ligurianising.*—Would it be a good time to Ligurianise the stock, at the end of the honey season? 3. *Feeding.*—Would feeding with honey at the entrance induce the bees to commence work in the super?—HARRY, *Llandilo.*

REPLY TO QUERY No. 673.—1. The change of the locality of your hive for the distance may be safely effected, if you take means that the bees, when they take their first flight after removal, should mark the points of their new position. 2. Ligurianising may be effected at the time mentioned, care being taken that the necessary conditions are observed. 3. Feeding at the entrance would not be advisable, as it would induce robbing by bees and attract wasps.

QUERY No. 674.—*Bees Clearing out Cells after Extracting.*—I shall be glad to know whether you consider it necessary that comb, from which the honey has been extracted, should be cleared out by bees before being put away for use the following year. There is always a certain amount of honey left in the combs after extracting. Would this honey be likely to ferment during the winter, and be hurtful to the bees when given back to them?—A. E. C., *Alnwick.*

REPLY TO QUERY No. 674.—The bees clear out the honey that remains after extracting so thoroughly that no better means could be devised for the purpose, and no better time could be selected than immediately after extracting. If left till the winter, and given to the bees at that time as food, there might be danger of fermentation, and the combs would be mouldy.

QUERY No. 675.—*Foul Brood.*—Have you any method of curing foul brood, as I am terribly afflicted with it?—J. BROOKS, *High Street, Barnet, July* 16.

REPLY TO QUERY No. 675.—Foul brood being a disease of so formidable a character, threatening the destruction not only of your own stocks, but of those of your neighbours, no half measures should be adopted to stamp it out; we would therefore desire to direct your best attention to the directions given in former numbers, and we beg of you to see that they are implicitly followed. Also consult Cowan's *Guide-book* chapter 'Diseases of Bees.'

QUERY No. 676.—*Cell building.*—Will you tell me what is the object of the bees when they hang in clusters from the top of a super-box while comb building? I understand that wax exudes as tiny scales from the rings of the abdomen of the bee. Does each bee ascend the cluster to deposit its wax on the comb, or is wax passed up from the bees below by those clustering to the workers above?—K. C. J.

REPLY TO QUERY No. 676.—It is said that to secrete wax it is required that bees hang in festoons or clusters, in absolute repose. If we examine the bees closely during the comb-building season, we note the wax-scales protruding from their bodies. These wax-scales are loosened by the claws, and carried to the mouth by the bees; when they are mixed by saliva and kneaded by the jaws. One bee, having the plate of wax in his mandibles, carries it from the part of the hive where he is to the place where the comb is being built; he then takes the plate and gives it a pinch against the comb, and takes his departure, to be followed by another, who adds his little plate, he, too, gives the wax a pinch, a little scraping, or burnishing, with his polished mandibles; others follow, and by the united efforts of many contributors—workers and polishers—the wonderful mystery of a cell is brought to perfection. Honey-comb is exceedingly delicate, the wall of a new cell being only about $\frac{1}{300}$ of an inch in thickness, and yet it is so formed as to combine the greatest strength with the least expense of material and room.

NOTICES TO CORRESPONDENTS & INQUIRERS.

J. CHURCHILL.—*Condemned Bees.*—In the circumstances mentioned it would be better to bring the condemned bees to your apiary and unite them there. The surplus queens may be utilised by placing them with queenless stocks, if you have any; or they may be offered for sale. If you make any selection of queens to be placed at the head of the stocks to be made, preference should be given to the queens of casts, as they are younger and more vigorous than those of swarms.

ALFRED CORNER, *Inglescombe, Bath.*—Open driving is the best way. Shake the bees on to the frames, having previously tied into them all the combs from the skeps which contain brood. The sooner you do it the better the bees will be prepared for the winter.

W. H., *New Barnet.—Sprinkling.*—A simple form of a sprinkler is a ginger-beer bottle with a notched cork. The syrup employed should be scented with a few drops of peppermint. Remove the queen that you consider the older and less vigorous.

CORNUBIA.—*Combination Hives.*—Hives on the Combination principle, with frames running across the entrance, are far more convenient than those which have frames running parallel with the sides, as only one dummy is necessary to regulate the size of the interior. The size of both brood-nest and super space may be much more easily adjusted when section frames are used instead of supers. The number which would be best to put in cannot, however, be determined, as so many circumstances must be considered, viz. strength of stock, time of year, state of weather, nature of the bee pasturage, &c. Each bee-keeper must use his own

judgment in this respect, as the best possible number of frames may be anywhere from one to ten or even more. It is best to begin by putting in one or two, increasing the number afterwards if the bees seem crowded. We would make the hive from 24 to 30 inches long. The bees would work just as well in ordinary frames, and the honey would be equally good, but in that form it would be almost unsaleable, while sections are convenient and readily disposed of.

ROBERT RANGER, *Maidenhead.—Mead.*—We very much regret that we cannot give our correspondent the exact proportions of honey and water which will produce the best mead. Our most successful brews have been the result of guess work when we think that about equal parts are taken. We would suggest your obtaining the advice of a practical brewer if possible, as experience leads us to the belief that a slight difference in this respect may make a great difference in the result. A cask which has recently been used for spirits is considered the best for the purpose, but any clean one will do. It must not be bunged down while the mead is fermenting. If fermentation is complete before bottling no wires are necessary, but if bottled while still in a state of ferment the wine will be sparkling and the corks will require securing with string or wire. Great care and judgment is required in the latter case as the result may be a general explosion.

W. B. JAMES, *Bridgenorth.—Bell-glass full of Bees.*—Your bees are not *disinclined to work*. During this cold, ungenial weather the flowers have ceased to afford a supply of nectar. The honey harvest for the present season is over, unless you are within reach of heather. Allow the glass to remain for the present; it can do no harm, but you must not expect impossibilities. Except from heather the honey flow ceases about the middle of July, especially if cold and wet.

W. E. BEST.—1. *Massacre of Drones.*—Yes; drones are often destroyed in this month. A continuance of cold, sunless weather at any time will cause the bees to remove drones in all stages of growth, hatched or embryos. There is no likelihood of a swarm issuing. 2. *Presence of Queen.*—On a fine day, when bees are working, observe carefully whether the bees of this hive are eagerly at work and carrying in pollen. If such be the case the young queen is fertilised and breeding, and on examination you will find eggs and larvæ. But if the bees are sluggish, and loitering about the entrance, and carrying in no pollen, when other hives are busily at work, you may consider the queen lost; and on ascertaining the fact by examination, another should be introduced at once. 3. *Storage of Honey.*—Very little honey has been stored during the present month in consequence of low temperature, abundance of rain, and sunless skies. Your bees appear to have been too weak in the early season to take advantage of fruit and other early bloom, from which a supply of honey was generally obtained. There is now no other chance except from heather.

GEO STOCKS.—We are pleased that our advice was followed. Much benefit may be derived from following the counsel of the Town clerk of Ephesus (Acts, xix. 36).

PERRANAWORTHAL, *Cornwall.—Fertile Worker.*—Your specimen was so crushed in the post as to be scarcely recognisable. From what remains, we are able to state that it was not a queen. It has much resemblance to an ordinary worker, except as to the unusual length of the body. The legs are clearly worker-legs. Whether fertile worker or not cannot now be told. We hope that before long a museum will be established where specimens of all varieties of bees, both domesticated and wild, properly set up in due entomological form, may be inspected.

*** *Several Queries and Communications have been postponed, having been received too late for insertion.*

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HEADQUARTERS

FOR THE

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THE

OXFORDSHIRE BEE-KEEPERS' ASSOCIATION

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Class II.—HONEY.

3. For the best exhibition of Comb Honey, in 1 lb. or 2 lb. sections, the total weight to be not less than 12 lbs. Silver Medal and 15/0 10/0 5/0
4. For the best Super of Honey, not sectional Bronze Medal and 15/0 10/0 5/0
5. For the best exhibition of run or extracted Honey, in 12 2 lb. or 24 1 lb. glass jars Certificate and 10/0 5/0 2/6

Class III.—HIVES.

6. For the best Moveable Frame Hive for general purposes, complete, for Summer and Winter use ... 15/0 7/6
7. For the best Moveable Frame Hive, price not to exceed 10*s.* 6*d.* 10/0 5/0

Class IV.—DRIVING.

8. For the competitor who shall in the neatest, quickest and most complete manner drive out the bees from a straw skep, capture and exhibit the Queen 15/0 7/6

Class V.—HIVES and FURNITURE.

9. For the best and most complete collection of Hives and Bee Furniture most applicable to the present system of Bee-keeping. No two articles to be alike 20/0 10/0

Class VI.—COTTAGERS.

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Questions on Bees and their Management answered by return of Post, 3*d.* Stamps. 'Modern Bee-keeping,' 7*d.* 'Bee-keepers' Guide,' by T. W. Cowan, Esq., 1*s.* 8*d.* post free. ILLUSTRATED CATALOGUE and PRICE LIST will shortly be ready, 2*d.* Stamps. Send 1*d.* Stamp for Price List.

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THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

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Editorial, Notices, &c.

THE BLIGH ECONOMIC COMPETITION.

Before the appearance of our next issue the time allotted for the settlement of the interesting experiment in apiculture called 'The Bligh Economic Competition' will have terminated. The limits appointed for the conduct of this unique idea extended from May 20th, 1882, to August 30th, 1883. So long a time has elapsed since the conception of the idea, and so numerous have been the additions to the numbers of our subscribers, that it is within the range of possibility that many of our readers will have now heard of this competition for the first time. We would, therefore, desire to hark back, and to give to such some account of the origin and purpose of this 'economic competition.'

In the *B. Bee Journal* for November, 1881, appeared a letter written by the Hon. and Rev. Henry Bligh, vicar of New Hampton, generously offering certain prizes, to be given to the competitors whose 'Poor Man's Separate Economic Department' should be judged to have been the best managed, most efficient, and profitable, during a given period of competition. The object of this competition was to show, especially to the cottager, the relative merits of different systems of bee-keeping, and to prove that bee-keeping, if conducted on economic principles, was highly remunerative to the bee-keeper. Prizes of 6*l*., 5*l*., 4*l*., 3*l*., 2*l*., and 1*l*., were to be awarded in order of merit to the competitors who derived the greatest profits from an experimental apiary of not more than two hives at the outset, which might be increased to any extent by natural or artificial swarming, and the total capital to be employed in commencing and maintaining the apiary was not to exceed 2*l*. The hives were to be placed in the garden of some cottager, so that he might see for himself how everything was managed; and each competitor was required to keep a diary, in which all transactions connected with the apiary were to be recorded, and every item of expenditure and receipt entered. Every amount expended in the apiary for food or any other incidental matter was to be charged against the apiary, and everything legitimately sold was to be set down in its favour. Vouchers were to be produced for all swarms and honey sold during the competition. Each competitor was placed under the surveillance of the secretary of the Association for the county in which the apiary was placed.

Such is an outline of the rules by which this experiment was to be conducted, and considerable anxiety is now being exhibited respecting the result. We believe that the number of competitors at the commencement amounted to seventeen. But for various reasons,—appearance of foul brood in the hive, illness of competitor, &c.,—many of this number have succumbed, and have fallen out of the ranks.

We presume that all the accounts that have been kept, and the diaries that have been written, will be submitted to the inspection of the Committee of the B. B. K. A., and that these gentlemen will determine to whom the prizes are to be awarded. We can conceive that there may possibly be some difficulty as to the interpretation of some of the rules. In Rule VIII., for example, two articles only of the produce of an apiary, 'swarms and honey,' are mentioned; and we suppose that these would be the 'legitimate' objects of profit which would occur to the mind of the cottager 'pure and simple,' and possibly to that of the originator of the competition. But it is quite probable that other objects of profit might present themselves to the active mind of some shrewd competitor; for example, he might have exhibited at some show, or shows, his bees, and obtained prizes for their purity and beauty; or his sectional or run honey might have gone the round of the shows—'from London to Gainsborough, from Gainsborough to York;' or he might have derived profit from the sale of his superfluous queens; and so forth. The judges will have to determine whether these matters fall within the 'legitimate' limits of the rules of the competition or not. We confidently leave the solution to them, feeling assured that the result of this honest and noble endeavour must tend to interest the cottager in the pursuit of apiculture, and to convince him that bee-keeping, if intelligently and economically conducted, will prove a profitable investment. And the history of the successes achieved, and likewise of the failures which have occurred, will prove no uninteresting addition to our apicultural knowledge.—G. H., *Ealing*.

USEFUL HINTS.

The Season.—Cold, wet, and wind! Thunder, lightning, and hail! Spiteful showers and breaks of bright sunshine, between dull, dark days! What 'hints' can be useful in such a season? The limes have come and are gone again, but have not much increased our stores. The winds are singing their autumnal 'Song of sighs,' and the forests are putting on their first tinges, that tell us of the 'sear and yellow leaf' that is to follow,—alas! how soon!—with the corn yet uncut and unripe. And yet a chance bright day brings in store, so that probably by the time this is in the hands of our readers there may be bright harvest weather with a pretty good supply of honey, as was the case last year in many parts.

Heather.—The heather-bell is beginning to make moorland and mountain-side to glow with its brightness, with a promise of a second harvest to those who live in those districts. Those who keep bar-frame hives in heather districts should extract all store, so as to give plenty of room for the bees to work freely, which will also have the effect of starting the queen to breed freely, while bees in skeps already full of store should be supered, with the hope of getting them filled, if weather proves favourable.

Queen-raising is almost out of the question with the weather we are getting, as drones refuse to fly in such weather; and although we have watched and seen young queens fly daily, yet they have failed to get fertilised on that account. We can only hope for a sudden change to help us.

Weak Stocks and Robbing.—After the experience of this season no bee-keeper ought for one moment to allow such a thing as weak stocks; but as, unfortunately, many do, we would warn them to carefully contract the opening so as to allow only two bees to pass at most, and to feed up to the required weight for wintering at once, and get some condemned bees as soon as possible and unite to them, or, failing to get any, unite the weak lot to a strong one at once. Robbing will certainly be prevalent if food continue scarce or you incautiously drop syrup about amongst your hives. Should a weak lot be attacked, strike the hive a few smart taps on the outside: this will drive all the robbers out that may be inside. If the hive has not a zigzag entrance, provide it with one, and contract it very narrow. The robbers may also be baffled by hanging a cloth in front of the hive, or standing a piece of board up on end; the owners will manage to find their way in spite of these obstacles.

Preparations for Wintering.—The bees are making preparations for wintering, so we should follow their example. Remove all supers at once if there is no further prospect of income, or you will find them getting 'beautifully less' daily. Extract at once, if you intend doing so, from body of hive, and feed to replace store extracted. This should be done regularly and continuously, not spasmodically, if you wish to keep your queen laying on late. Stocks pretty well supplied may be kept breeding by feeding slowly but continuously. Be sure not to let the bees feel a check, or they will cease breeding; if you do not wish them to breed, you may feed them up to required weight as quickly as convenient.

Rescued Bees.—Cottagers are generally loath to 'take up' their bees until very late in the autumn,—too late often to induce the bees to build out combs for themselves and fill them with sealed store before the frosts are upon us; to press them to do so earlier often raises a suspicion in their minds that you are going to make a bargain out of them; consequently, if you have an opportunity of securing any from cottagers, by all means do so now, and prepare for their reception by getting your strongest stocks in bar-frame hives to build out combs from foundation and store food in them in readiness. You will then simply have to drive the bees, and put them into bar-frame hives filled with combs with their winter store already sealed over. When driving the bees for the cottagers do not forget to make good use of the opportunity of giving them a lesson in bee-keeping.

Wasps are numerous and very troublesome. Continue to destroy them as advised in our last 'hints,' and make every preparation for wintering.

Stings from Bees or Wasps.—Chalk wetted with hartshorn is a remedy for the sting of a bee, also table salt kept moist with water. A raw onion is an excellent remedy for the sting of a wasp or bee, also poppy-leaves bruised and applied to the part affected will give almost immediate relief.

Recipe for Mead.—Having been requested by a correspondent to give some plain directions for making mead, we have pleasure in reproducing Mr. Symington's recipe. Take six gallons of water, 24 lbs. of honey, that which is the thickest and darkest is the best for the purpose; boil for half an hour, removing all scum as it rises, add three ounces of best hops; boil again for fifteen minutes, strain into a cooling vessel, and when lukewarm add six tablespoonfuls of brewer's yeast well stirred in. Allow it to work for twenty-four hours, remove the head and put the liquor into a five-gallon barrel, into which has first been put half a bottle of best pale brandy and two lemons, sliced. Leave the bung out and allow it to work over, filling up as it decreases with the spare liquor. When the working has ceased bung it down tightly and bottle in two years. Formerly it was the practice to put the brandy into the mead when bottling the latter, but it has been found that adding it in the barrel gives a much better result. For this delicious beverage Mr. Symington was awarded the silver medals at Edinburgh, at Dumfries, at South Kensington, and at Glasgow in 1878, facts which indicate this recipe to be a valuable one.

CELEBRATED BEE-KEEPERS.

DR. DZIERZON, OF CARLSMARKT.

The Rev. Dr. John Dzierzon, the subject of this sketch, was born on the 11th of January, 1811, at Lobkowitz, in Silesia, Prussia, where his father was a farmer. Dzierzon's father was an apiculturist, and it can be rightly said, Parson Dzierzon obtained his love for bees in the milk of his mother. Even in his boyhood bees fettered his soul. From 1822 to 1833 he studied in Breslau. In 1834 he took the office of the chaplain at Schalkowitz. In 1835 he was called as a Catholic priest to Carlsmarkt, in Silesia, where he worked in blessed activity until the summer of 1869. Since that time he has retired from his clerical duties in order to devote himself entirely to his bees. He immediately established an apiary in the garden of the parsonage at Carlsmarkt. The number of hives here soon grew too large, and then he erected additional apiaries in the neighbouring village, so that he soon had twelve apiaries, occupied by 400 to 500 hives, and they called him 'the Duke of Bees, of Carlsmarkt.'

In February, 1853, he introduced the Italian bee. He succeeded in propagating this race pure, and to diffuse it over all lands. At first he reared bees in ordinary hives. He invented the really most perfect habitation for bees, the hive with moveable combs. After many attempts, Dzierzon built a hive not so long, and higher, to make up for it, with a fixed top and floor, and a door at the side. Now he could easily take out and put in again the combs built in chambers; the hive with moveable framework was discovered; and as long as bees are reared, the name of Dzierzon must and will remain in honour of this discovery.

By means of the hive with moveable frames, the bee became a domestic animal in the full sense of the word. Dzierzon became, by means of his hive, unlimited master of his colonies, for it allowed him an insight into the inmost portion of the life of bees; and, gifted by God with a remarkable understanding, and with an unusual and keen observation and power of combination, he very soon perceived the wonderful life and motion of the bee-hive.

Dr. Dzierzon set up a new and true theory of bees, which endured the fiery ordeal of practice and science, and in a short time became the healthy and solid foundation of a care of bees rational and conformable to nature. With the help of the Italian bees, the gifted master succeeded in silencing the last doubters of his theory, or in making them defenders of the same. His theory is briefly this: There are, in a normal colony of bees, three kinds of creatures, queen, drones, and workers. The queen is the only perfect female in a colony; is impregnated only once in her life; and lays the eggs for all the forms of bees. She impregnates the eggs in the very laying, or else does not impregnate them at all. In the first case, queens and workers are hatched from them; in the other case, drones. These, the males, are virgin-born, *i.e.* they are hatched from eggs that the queen lays unimpregnated, which she allows to pass contact with the drone sperm from her *receptaculum seminis*. The workers that are hatched from impregnated eggs are imperfectly developed female beings, which, in spite of these imperfectly developed organs, which admit of no fertilisation by a drone, still under certain circumstances, can lay eggs, from which, without exception, drones only are hatched. The 'parthenogenesis' is the doctrine of the virgin-born in the bee-hive.

Dzierzon's name has penetrated to all parts of the earth, and he is everywhere acknowledged a great master, as is shown by the great number of domestic and foreign diplomas.

Since 1848, Carlsmarkt has become the goal of pilgrimages of bee-keepers. What Dr. Dzierzon has accomplished for the cause of apiculture can be learned from his books; but only Dr. Dzierzon himself can set the example of how we must love and investigate the bees. In no way has he done more for bee-culture than in this, that he has formed scholars, in whom his apicultural spirit, the spirit of observation and investigation, has been roused. His life remains sacred to his scholars and friends.—C. J. H. Gravenhorst.

ASSOCIATIONS.

LEICESTERSHIRE BEE-KEEPERS' ASSOCIATION.

The second great exhibition of bees, honey, and hives of this Association was held in the Show Ground of the County Agricultural Society at Melton Mowbray, July 25th and 26th.

This rising Association may be congratulated upon the very well-arranged show, which although small, owing probably to the fact that so many other shows were on at or about the same time, was still of sufficient interest to draw a crowded assembly. There was but little to suggest to the very earnest and courteous hon. secretary, Mr. Ball, and his enthusiastic helper, his better half, for the whole of the work seemed to devolve upon them, beyond that, in future, the tent for bees, honey, hives, &c., should be double the size; and when the show is held on the grounds of the Agricultural Society, the manipulating tent should not be fixed so close to open sheds occupied by valuable horses; also, that the Committee of the Association should make a point of being present at the annual gathering, and so lighten somewhat the heavy labours of the honorary secretary, and assist in other duties connected with the show, as, for instance, entertaining visitors, and explaining to them the various methods of bee-keeping, and the uses of the numerous exhibits, and thus help on the grand object of the Association.

On this, the first day of show, we would specially note the presence of one real genuine old veteran in J. W. Bickley, Esq., a Meltonian of known repute, whose grand glass supers of the Sells' type have graced our annual show-benches from the earliest date.

The schedule of prizes offered was a liberal one, and should have brought a sharp competition.

Class 1, for best stock of bees in Observatory hive, there was only one entry; we are not surprised at this, as the too-often-ruinous results of sending whole stocks of bees to shows makes the 'old 'uns' shy. A second prize of 20*s.* was awarded to Dr. Emmerson, of Waltham.

Class 2, for the largest and best exhibition of super honey, sectional or otherwise. Only two entries. Three prizes offered, viz. 30*s.*, 20*s.*, 15*s.*, but the awards made were to Mr. Ball, 20*s.*, and Rev. B. Barrett, 15*s.*, the first prize being left out, as in the opinion of the Judge the amount offered as second and third prize was sufficient for the merit of the exhibit.

Class 3, for the largest and best exhibit of run or extracted honey in glass jars. There was a good entry. The first prize fell to Mr. Truss, of Bainton Heath, Stamford; 2nd, Mr. Walter S. Pridmore; 3rd, Mrs. Rippon, of Waltham. The neat manner in which the exhibits in this class were put up deserves special notice, the quality of the honey in two or three lots was very fine.

Class 4, best honey in the comb (bar, section, or super). 1st prize (the much-coveted silver medal of the British Association) was honourably won by Mr. J. W. Bickley, Melton Mowbray, with a collection of well-filled supers, whilst the Bronze Medal deservedly fell to Mr. Ball, for his exhibit of rare sections.

Class 5, for the best run honey. Here a more definite rule for the guidance of exhibitors might have been made, say, for the best glass of run honey of not less than 6 lbs. net, or the best 1-lb. glass jars, quality of the honey the point to be judged. 1st prize, B. B. K. A. certificate, Mr. W. S. Pridmore.

Class 6, special prize for cottagers, given by T. Brooks, Esq., of Barkley Hall, for the best supers (in straw, glass, or otherwise) taken from straw skep. Only two entries, although six prizes were offered amounting to 60*s.* 1st prize, 20*s.*, awarded to Mrs. Jane Walton, for a very pretty lot of twenty-five 1-lb. sections, which could not fail to satisfy the liberal donor, and it is to be hoped will induce him to continue to offer so valuable a special for cottagers. A prize of 5*s.* was awarded to A. Kirby.

Class 7, for the best Observatory hive stocked with bees. 1st prize, 20*s.*, was awarded to Messrs. Abbott Brothers, for their well-known hive, and which was much admired. The 2nd prize, 15*s.*, to Mr. E. Ball, for a good, strong out-door hive, and, being the production of an amateur, is deserving of note.

Class 8, for the best frame-hive, with arrangements for summer and winter working; price not to exceed 10*s.* 6*d.* Brought eight entries. It is satisfactory to find that good, strong, well-finished hives can be produced at so reasonable a cost. Manufacturers who would be in the swim may, to their advantage, view the course of the tide. 1st prize was awarded to Mr. G. Stothard, of Welwyn; 2nd, to Mr. C. Foxen (an improved Blake); 3rd, to Mr. A. Blake.

Class 9, for the best cottagers' hive on the moveable-comb system, the work of an amateur; cost of material

not to exceed 5*s*. Drew but two entries, and one prize was awarded.

Class 10, cheapest and best supers. Messrs. Abbott Brothers were first with their cheap, compact, 3*s*. crate of sections. Mr. Foxen 2nd, with a strong, useful crate of sections.

Class 11, for the best collection of hives and bee furniture. The 1st prize, 40*s*., was awarded to Messrs. Abbott Brothers, for a grand display, a show in itself. A 3rd prize of 10*s*. was given to Mr. W. P. Meadows,

Mr. R. R. Godfrey, of Grantham, acted as Judge.

The manipulating tent, for entrance to which a special charge was made, was not largely patronised. It is a question which the Committee of the L.B.K.A. may do well to consider, whether it would not be better to abandon the charge for admittance to manipulating tent. The public, as a rule, dislike having to pay extras in a show ground.

Mr. Blow, one of the experts of the Central Society, was engaged for the manipulating tent, and delivered some interesting addresses.

STAFFORDSHIRE COUNTY BEE-KEEPERS' ASSOCIATION.

The first exhibition of honey and bee-keeping appliances of this Association was held in connexion with the Staffordshire Agricultural Society's Show at Lichfield on August 7th and 8th, with the following result:—

Class 1—Collection and appliances (open to all England): 1st, S. J. Baldwin, 3*l*.; 2nd, E. C. Walton, 2*l*.; 3rd (offered by Mr. A. H. Heath), A. W. Rollins, 1*l*. Class 2—Frame-hive for general use, price not to exceed 15*s*.: 3rd, J. Leake, 10*s*. Class 3—Six sections of comb-honey: 1st, A. H. Heath, 1*l*. and silver medal of the B.B.K.A.; 2nd, A. J. Brown, 15*s*. and bronze medal of B.B.K.A.; 3rd, H. Wood, 10*s*. Class 4—Honey in glass jars: 1st, J. C. Coleman, 1*l*.; 2nd, J. H. Henry, 15*s*. Class 5—Comb-honey in any form made by an artizan or agricultural labourer: 1st, J. Dodd, 15*s*.; 2nd, J. Handley, 10*s*.; 3rd, H. Whitnall, 5*s*. Class 6—Sample of comb-foundation made before the judges: 1st, S. J. Baldwin, 15*s*. Class 7—The best stock of bees exhibited in a straw skep: 1st (offered by the county expert, Mr. A. W. Rollins), E. Clowes, a bar-framed hive. The Hon. and Rev. C. Feilding, Stapleton Rectory, Shrewsbury, and Capt. Greaves, Stafford, acted as judges.

There was no competition for prizes offered by the clergy of Lichfield for the best show of honey made by a cottager who lives within eight miles of Lichfield. The Staffordshire Association are to be congratulated on the excellent show of honey. There were eleven entries in Class 3 and nine in Class 2. Mr. S. J. Baldwin was in attendance with the tent of the B.B.K.A.; and although the weather was not all that could be desired, his lectures were well attended, and the Association is indebted to Mr. Baldwin for his careful attention and instruction. The exhibition was well attended throughout both days of the show, and let us hope it will produce some good results.

HANTS AND I. W. BEE-KEEPERS' ASSOCIATION.

The first County Show of this Association was held at Southampton, August 4 and 6, in connexion with the Royal Southampton Horticultural Society. This show, which is one of the most largely attended in the south of England, affords an admirable opportunity for the Hants B.K.A. to unite with, and it is not too much to say that the latter made the most of their opportunity.

An immense number of visitors visited the show on both days, especially upon the latter, which was Bank Holiday, and a fair amount of interest was shown in the bee department. This would, however, have been greater but for the counter-attraction of a military fête, which was going on at the same time. The weather was all that could be desired, and the beautiful park belonging to the Horticultural Society added greatly to the general attraction.

The exhibition tent of the bee department was very well filled, and in spite of the very general complaint against the season, a large display of sectional and extracted honey was made, amounting we were told to nearly three tons. As regards bulk Mr. William Hunt of South Warnborough took the lead in the former, and Mr. Bellairs, the Hon. Secretary, in the latter. Amongst the exhibits of sectional honey was a very fine one belonging to the Rev. W. E. Medlicott, of Swanmore Vicarage, who sent upwards of 60 lbs. in sections taken off one hive, and gathered during the month of June. Some very fine specimens were also shown by the Rev. R. Parker of Wickham Rectory, Mrs. Birch Reynardson, of Rushington Manor, and Mr. Henry Puzey, of Upper Farringdon.

Of the thirteen entries in this class (best 12 lbs. in sections) none were second-rate, and the judges had an extremely difficult task in deciding upon their respective merits. In the class for best extracted honey there were exhibits varying in shade from almost white, colourless honey to a rich ruby, showing the varied fields available to Hampshire bee-keepers. The way in which the different exhibits were put up left little to be desired; and amongst other methods we specially noticed that adopted by Mr. William Hunt, who, by using the American corrugated paper packing, assured us he was enabled to send extracted honey in glass bottles by the new Parcels Post with absolute safety. This fact cannot be too generally known, and its immense value to bee-keepers is, we think, obvious. It should remove many of the difficulties of county societies in finding a market for members' honey, and the easy way in which producer and consumer are brought into direct contact will prove of very great value to the bee-keeping industry.

In the classes for appliances Messrs. Neighbour carried off first prize for 'best collection,' with a magnificent display of goods and inventions meeting the bee-keeper's every want; and the way in which they carried off the prizes one after another, testified to their intention and ability to hold front rank among bee-keepers' suppliers. Out of five entries they took four first and one second prize, amounting in the aggregate to the convenient sum of 6*l*. 10*s*.

Messrs. E. M. Hart & Co. came second with a useful collection and some very well-made hives, taking first prize with the latter in the '40*s*. hive' class.

In the extractor class a new invention was shown by Mr. H. V. Edwards of Derby, which excited a great deal of interest. It is called 'The Oblique Extractor,' the baskets being made to deviate from a right line in order that greater radiating energy may be given to the top part of the comb than to the bottom, where all the brood and eggs are placed. We understand that a series of experiments are to be conducted with this machine, the result of which is to be published in the *Journal*. The judges being unable to test satisfactorily this principle decided to award it a special prize.

The 'best made amateur hive' class was very popular, and showed that Hants possesses many skilled amateur mechanics. The first prize was awarded to the Rev. A. B. Cotton for a very well-made old Diamond *alias* new Anglo-Cyprian hive, which excited much interest, being the first exhibited in Hampshire,—at all events for many years.

Subjoined is a list of the prizes and winners:—

Class 1. For collection of appliances, Neighbour, 1; Hart, 2; Martin, 3. Class 2. For extractors, Neighbour, 1; Edwards, special. Class 3. For observatory hives, Neighbour, 1. Class 4. For 40*s*. hives, Hart, 1; Neighbour, 2; Summers, 3. Class 5. For 7*s*. 6*d*. hives,

Stothard, 1; Summers, 2; Stothard, 3. Class 6. For amateur hive, Rev. A. B. Cotton, 1; E. H. Bellairs, 2; G. Holley, 3. Class 7. For section racks, Neighbour, 1; Rev. W. E. Medlicott, 2; Wm. Hunt, 3. Class 8. For honey, ½-cwt. in sections, Wm. Hunt, 1; Rev. W. E. Medlicott, 2. Class 9. For extracted honey, E. H. Bellairs, 1; Wm. Hunt, 2. Class 10. For largest and best exhibit of honey, Wm. Hunt, 1; Rev. W. E. Medlicott, 2; E. H. Bellairs, 3. Class 11. For 12 lbs. of honey in sections, Rev. R. Parker, 1; H. Puzey, 2; F. J. B. Beckford, 3. Class 12. For 12 lbs. of honey extracted or run, F. J. B. Beckford, 1; G. Holley, 2; E. M. Hart, 3. Class 13. For skeps of bees, J. Giles, 1; Chas. Jarrant, 2; Chas. Jarrant, 3.

The extra class, or 'Honey Fair,' had not many entries, the general remark being that exhibitors had more customers than they could supply. This shows very conclusively that the supply so far does not meet the demand, and the necessity for a depôt, at all events for Hants men, has not yet become a burning question. What honey was staged 'on sale' sold fairly well, but we think a mistake was made in not allowing Saturday visitors to take away the honey they wished. If this had been done, probably all the honey on sale would have changed hands. Doubtless the mistake will not be repeated, though the desire to show as much honey as possible was laudable.

The bee-tent was managed throughout without the assistance of a professional expert, and was under the guidance of the hon. sec., E. H. Bellairs, Esq., who was driving bees and lecturing throughout both days. He was ably assisted by the Rev. W. E. Medlicott, the Rev. Dr. Wray, F. J. B. Beckford, Esq., and John Fedrick, Mr. Bellairs' gardener, all of whom showed themselves thoroughly proficient in the art of bee management. Amongst other volunteers we must mention the skilful manner in which Mrs. Bellairs and Mr. Medlicott's two little daughters drummed out the bees *sans* gloves *sans* veil, as also a 'middy' from the 'Britannia,' a son of Gen. Sir William Bellairs, whose plucky management elicited great interest; and we have no doubt that many people went home with a milder view of the horrors of bee-keeping.

WILTS BEE-KEEPERS' ASSOCIATION.

In connexion with the Calne District Horticultural Society, the Wilts Bee-keepers' Association will hold their Annual Show of bees, hives, honey, &c., in Bowood Park (by kind permission of the Marquis of Landdowne), on Thursday, August 23rd.

The Second Show of the season will be held in connexion with the Chippenhan District Horticultural Society, in Monkton Park, Chippenham (by kind permission of West Awdry, Esq. and the Rev. H. W. White), on Wednesday, August 29th.

DEVON AND EXETER BEE-KEEPERS' ASSOCIATION.

In addition to the exhibitions of this Society already reported for 1883, shows were held at Ottery St. Mary on July 30th, at Escot Park, the seat of Sir John Kennaway, Bart. M.P., at the same time as the Ottery St. Mary Flower Show. Nothing could have been worse than the weather experienced.

The arrangements of the show were carried out by the hon. secretary of the Association, W. N. Griffin, Esq., and Captain Gilbert, R.N., the hon. expert of the Society, manipulated with living bees in the new bee-tent, specially adapted for the prevention of the bees stinging the spectators. The honey exhibited was very good considering the season. Sir John Kennaway, who is one of the Vice-Presidents of the Association, takes a great interest in the culture of bees. The exhibits were staged in a tent lent by Mr. Hine-Haycock, of Sidmouth. Bee-keeping is an industry that has been much neglected, and it is the object of the Devon and Exeter Bee-keepers' Association to encourage and advance it. One of the members of the Society last year made 100*l.* by his bees, and a cottager who paid 5*l.* a-year rent for his cottage and garden cleared 30*l.* The judges were Mr. W. H. Ellis, of Exeter; the Rev. F. C. Salmon, of Honiton; and Mr. J. Thacker, of Ottery. Good prizes were offered, but in several classes there were no entries. Mr. Griffin was awarded first prize for the best exhibition of comb honey in sections, Mr. Ellis gaining second honours. In the class for the best eight sections of comb honey the Rev. F. T. Salmon was awarded first prize. Mr. W. J. Godfrey coming to the front for the best twelve jars of run honey. In the class for bees' wax Mrs. Dickinson was awarded first prize. For the most perfect bar-frame hive the improved Griffin Hive was awarded first prize, Mr. H. W. Durant gaining second with a copy of this well-known hive. For straw hives Mr. J. Wilcox was awarded first and second prizes. Messrs. Richards and Honey gained first for a collection of bee appliances, whilst Mr. H. Moxey was awarded second, and these two firms came in the same order for the cheapest and best sectional super.

Another show was held at Dawlish, on July 31st, in connexion with the Dawlish Horticultural Society; by kind permission of P. M. Hoare, Esq., on the beautiful grounds of Luscombe. The day was fine, and although the atmosphere was cloudy in the morning, the heat was oppressive. A series of manipulations with live bees was conducted by Capt. Gilbert, R.N., the Hon. Expert of the Association, who showed how bees might be more profitably managed without killing the bees. He also lectured on the anatomy of the bee, and the use and benefit of the bar-framed hive. The manipulations took place in the tent of the Association, invented by Capt. Gilbert. W. N. Griffin, Esq., the Hon. Sec. was present on behalf of the Society.

The Society was also represented at Exmouth, where manipulations were carried out similar to those at Dawlish under the arrangement and supervision of the same officials. This show was held on August 2nd on the picturesque grounds of Marpool Park, the seat of Sir John Phear, at the same time as, and in connexion with, the show of the Littleham-cum-Exmouth and Whithycombe Horticultural and Cottage Garden Society. Very heavy showers fell during the afternoon which seriously affected the operations in the bee-tent.

BEES AT THE LOUTH FLOWER AND POULTRY SHOW.

AUGUST 2ND AND 3RD.

Our Louth friends, always on the alert, secured a place in the programme of this important gathering, which was, by the kind permission of Josh. Bennet, Esq., held at 'The Cedars.' Messrs. H. O. Smith, Wm. Forman, H. S. Forman, and G. Bywater, the gentlemen who formed the bee committee, may be congratulated upon the great success of their labours. As is generally the case when bees are introduced at such meetings, they are all and all, and on this occasion it was not an exception, for the moment the show was opened folks flocked to it in great numbers. Mr. H. O. Smith had the management of the manipulating tent, and right heartily did he enter into his work. Mr. W. Forman had the care of exhibits in competition, which were very completely arranged in a marquee, and gave pleasure to very many visitors. The marquee was frequently crowded, and would have been better if it had been double the size.

The very liberal schedule certainly ought to have brought a large competition; still, the classes were

fairly well filled, and the various exhibits staged were good. The bees in observatory hives attracted considerable attention, which is always the case at our shows.

The driving competition, in which there were three competitors, was watched with intense interest, but the interruption by a heavy storm prevented it being finished, and so had to be resumed the following day, when George Wilson, who had driven his bees and captured the queen in nine minutes, was deservedly awarded first prize. Fred. Midgelow, of Wainfleet, undoubtedly showed the best skill in the competition, but unfortunately for him rain came on at his start, and so was against him.

In the honey classes there were some beautifully filled sections deserving of high praise, and some grand glass supers. The samples of extracted honey were very good, the quality far above an average. The hive classes, which were for straw only, brought out two or three really good hives, whilst there were several unfit for a home for bees. The class for 'best and strongest straw skep of bees' is one which ought never to be seen in any schedule; true the framers of the schedule say 'it must not be a swarm of this year'—thoughtful, very; but if they had been a little more thoughtful and left out of an otherwise well-arranged schedule such a class, they would have been spared the pain of witnessing a bee-pudding or two.

R. R. Godfrey, Esq., of Grantham, was the Judge, and his awards were most favourably received.

GLOUCESTERSHIRE.

At the invitation of the Gloucestershire Agricultural Society, the Wilts Bee-keepers' Association erected their tent on the show-ground, Berkley, on July 24–26. The attendance was most satisfactory, 18*l.* 3*s.* being taken in the tent. The experts of the Association, Rev. W. E. Burkitt and Rev. E. Davenport, were in attendance, and gave frequent lectures and displays. The competitors were not numerous, and the supply of honey very short. The following is a list of the prize-takers, the judges being, Rev. J. L. Stackhouse, Herbert Jenner-Fust, Esq., jun., and Rev. E. Davenport:—

Class 1—For best stock of bees of any race: Mr. Hole, highly commended. Class 2—For best observatory hive: 1st, Mr. Gibbons: 2nd, Rev. W. E. Burkitt. Class 3—Best bar-frame hive, not to exceed 15*s.* in cost: 1st, J. E. Wilshere; 2nd, E. M. Hart & Co. Class 4—For best bar-frame hive for cottager, not exceeding 7*s.*: 1st, J. E. Wilshere; 2nd, not awarded. Class 5—Best and cheapest rack of sections: 1st, E. M. Hart & Co.; 2nd, W. E. Burkitt. Class 6—For best collection of bee-furniture: 1st, W. E. Burkitt: 2nd, J. Hole. Class 7—Any new invention, &c.: 1st, E. M. Hart & Co., for self-adjusting frames; 2nd, W. E. Burkitt, for drone-trap. Class 8—Best twelve 1-lb. sections of honey: 1st, Miss E. Preston; 2nd, H. Bevir, Esq. Class 9—For best twelve 1-lb. jars of honey: 1st, C. Marshall, jun.; 2nd, Miss Parr. Class 10—For best flat-topped skep with feed-hole, cap, and floor-board: 1st, H. Huish; 2nd, G. White.

FLOWER SHOW AT MORTIMER HILL, BERKS.

On Tuesday, August 7th, the Flower Show was held in the beautiful grounds of Mortimer Hill kindly lent for the occasion by Sir Paul Hunter, Bart. The grounds were thrown open at five p.m. to the public, and were soon alive with a large and interested concourse of people. Before the distribution of prizes by Sir Paul Hunter, Mr. Kingswood, who is acting in the capacity of local secretary of Berks B. K. A., was invited by the worthy president to devote five minutes in briefly describing the various bee appliances, which he had for inspection, kindly lent for the occasion by the expert of Reading Mr. A. D. Woodley. Great interest was taken during the show to this particular item; and all the honey in supers and sections was disposed of, and another year, if it could be so arranged by the show committee, a great attraction to the show would be a bee-tent, where an expert would perform and show practically the method of driving, etc.

CARMARTHENSHIRE BEE-KEEPERS' ASSOCIATION.

The Association will hold its first Annual Show of Bees, Honey, Hives, and Appliances, Apiarian Manipulations, and Honey Fair, at Dynevor Castle, Llandilo, on the 5th and 6th September. Entries close 25th August. For schedules and entry-forms apply to the Hon. Secs.: the Rev. John Lloyd, Golden Grove, R.S.O., and L. Oswald Lewis, Llandilo.

CORK BEE SHOW.

The Co. Cork Bee-keepers' Association held their Show on July 25th and 26th, in connexion with the local Agricultural Society, at the Cork Industrial Exhibition. The bee show proved a success, notwithstanding the many other attractions and other adverse circumstances.

The competition for driving on the first day was confined to the expert Mr. T. W. Strangman: he caught the queen in about ten minutes. P. Traynor, a lad of fifteen, successfully handled the bees during the remaining manipulations, being assisted by Mr. J. Crosbie Smith.

Mr. J. Crosbie Smith, in lecturing, strongly advocated the use of flat-topped straw-skeps, particularly for those taking up bees for the first time.

Foreign.

JAVA.

Mr. F. Benton, who visited Java in order to study Apis dorsata, and if possible, to introduce this bee into Cyprus, and thence into Europe and America, brought nine colonies of bees with him, seven being from Cyprus and two from Palestine. New hives were procured in order to try once more to acclimatise bees in Java after the first attempt to introduce the European bee, which was made in 1878, had proved a failure. The trial was made at Tjikeumeuh under the direction of Mr. Messink. The bees were placed in the Botanical Gardens under the superintendence of Mr. Benton, who looked after them personally for twenty-five days. When he left four queens had commenced laying eggs, and the other colonies, including their queens, were in tolerably good condition considering the long voyage they had made. During the first fortnight after their arrival the bees were fed with sugar dissolved in water. After this time the workers from four hives began to fly out, and returned laden with honey. The queens continued depositing eggs for about three months after their arrival in Java. After that egg-laying diminished, and at last the bees quite ceased to leave the hive. The number of worker-bees became smaller and smaller, and finally some of the colonies dwindled down so much that only the queen and a few worker-bees were left. With a great deal of trouble one colony was kept alive till the end of the year. But when the western monsoon set in in 1881 the population of this stock also dwindled away, and the workers flew out no longer, probably on account of the dampness of the atmosphere.

The experiment to domesticate the East Indian bee (Njiroean) has given a better result than a previous attempt in 1877 and 1878. For the last eight months there have been two colonies of these bees in Tjikeumeuh

with very large populations. The bees fly out and collect a great deal of honey. Eggs are deposited regularly and without interruption. The honey of this bee is generally considered inferior in flavour, while the wax is said to be of excellent quality. A swarm given off by one of the colonies a short time ago has been secured, but it was no easy task. In Europe a swarm generally settles on a branch of a tree near the apiary, from which it is easy to remove the bees; but the Indian bees fly high up into the air, and do not settle till some time after.

CEYLON.

In Ceylon the bees that were imported by Mr. Benton have been more successful than those in Batavia. During the rainy season from May till September the colonies were supplied with food, but in the remaining months of the year the bees collected sufficient honey from the flowering palm-trees and other tropical plants for their own wants, and had even some to spare for their master. One stock swarmed three times, but unfortunately, during the absence of the bee-keeper, the bees had been left in charge of the servants, who neglected to attend to them, so that all the three swarms flew away and settled in the jungles, where they probably perished during the rainy season.

AUSTRALIA.

I began the season of 1882 with eleven colonies, in Langstroth hives, and, not desiring increase, I attempted to prevent it by removing frames of brood to less vigorous colonies, and cutting out queen-cells; but the bees appeared dissatisfied with such arrangements, and did no work in the sections. They continued the process of queen-cell building, and whenever a colony became populous enough to work in the sections, then also occurred afresh a desire to swarm. However, I continued to cut out cells, and remove brood, till the season had advanced so far that it was very certain swarming must be over for the year.

From January 1st to the end of February, showers of rain fell almost every day, and during all that time, and afterwards, they employed themselves with worrying and throwing out the hatching brood.

At first I thought it might have been brought about by my having checked their desire to swarm, but I noticed that the bees in each of the four common box-hives in another part of my yard were engaged in the same way. Then I concluded that, owing to the rainy weather, the store of honey which they could collect was insufficient to supply the wants of so much young brood, and that they took this course as the surest way of checking the drain upon it. But, as there were thousands of acres of white clover immediately around, and any quantity of flowers from forest trees, with no other colonies within three miles to share the supply, I find it difficult to believe that so few colonies should have been unable to collect sufficient for themselves.

In order to increase the honey resources of this place, I have introduced several bee plants. Besides a few rows of white sage and horsemint, I have a small plot of catnip and sweet clover. These are growing most luxuriantly on river-bottom land, while some that I tried on hill-land with a stiff clay subsoil at a depth of twelve inches, did not thrive at all; in fact, in spite of continual waterings, there are not now to be seen more than half a dozen wretched plants, about three inches high, out of a plot of twelve feet square. I think it pretty certain that in this region sweet clover will require the same depth of soil as does lucerne (*alfalfa*). Of course it would grow on a poorer soil, but it could not produce much stalk or flowers. My trial, however, was somewhat severe, because in a soil not deeper than twelve inches, and under our summer sky, no sufficient moisture, in spite of frequent surface watering, could be present below the top for the nourishment of the plant while tender. Probably, if planted on the same kind of land in the fall, it would gather strength enough before the following summer to withstand a long period of dry weather.—A. Verge, *New S. Wales, Australia* (*American Bee Journal*).

AMERICA.

Austin, Texas, U.S., *July 27th*.—The honey season for Texas may now be fairly said to be a failure. The biggest bee-man in this district told me to-day he had not got a pound of honey from his bees; but, on the contrary, has fed to about thirty-six colonies some 600 lbs. of last year's honey. True, he has been stimulating some little for queen-raising, being in the supply business. Reports of having to begin feeding come from all around. The bees may get enough to keep them on 'rations' for the summer; but I doubt whether they will gather enough to 'winter' on—even a Texas winter. The cause is mainly owing to the drought; corn has suffered, and cotton also much. Last year gave large yields. This year none at all. Reports from all over the rest of the United States make this year to be a perfect honey-glut, so large is the yield. I have begun to feed to get my colonies a decent size for winter, and expect to keep on more or less till spring. Such is the report from Texas, and this in view of the fact that it is claimed that Texas will be, and is, the coming 'Banner state' for honey-raising in the Union. The bee-keeper I alluded to last year took over 350 lbs. of honey from each of his colonies, so you can judge what the let-down this year is. The *British Bee Journal* is a welcome visitor to me. It comes from *home*.—R. J. K.

CANADA.

The National Convention.—The National Bee-Keepers' Association will hold its Annual Convention in the City Hall and Council Chamber in the city of Toronto, on Tuesday, Wednesday, and Thursday, the 18th, 19th, and 20th days of September, during the second week of Canada's Great Fair. All the railroads in Canada issue tickets during the week at single fares for the trip. Special excursion rates have been arranged from various parts of the United States. A grand meeting is anticipated.

HONDURAS BEES.

There is staying in this village a Wesleyan Missionary from British Honduras, Central America. Plying him with questions on the animal and vegetable life of the colony, I learn some very interesting facts. The colony is famous for many kinds of valuable timber; but most of this timber is very hard and dense, and will not float in water. The woods teem with animal life, and are gay with flowers. There are herds of deer and wild hogs; flocks of many varieties of birds, some surpassingly beautiful in plumage; jaguars, pumas, opossums, wild cats, boa-constrictors, snakes, and myriads of insects. But here comes the peculiarity. *All the snakes are more or less venomous, and all the insects are more or less pestiferous, but one—that is, the honey bee.* The Honduras bees are quite harmless: they neither bite nor sting. They are small and broad in the body, like our small humble bees, in colour something lighter than the English bee. They build in the hollows of trees, and their combs are not large, but the cells are capacious, in size a good deal larger than our drone-cells. The honey is in quality and colour similar to our clover honey. When a colonist desires a stock of bees, he goes into the woods, selects his bee-tree, cuts the top off just above the bee-nest, makes another cut just below, and marches home with his bees inside the log. One colonist has fifty of these log-hives in his garden, all of which he has gathered from the woods, piling them up on a sort of platform. A quart of honey is sold for the equivalent of our shilling. My informant states that he has more than once inserted his hand into a bee-nest and pulled out a delicious handful of comb.—W. Berrill, *Ridgeway, near Chesterfield*.

Correspondence.

*** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

HYBRIDS.

As stated in previous issues of the *Journal*, my experience with the Hybrids and Ligurians has not been very favourable. I have determined to change them to the blacks again. On July 9th I destroyed several hybrid queens, and on the 12th put in sealed queen-cells, raised from the common bees' eggs. On the 26th I had a swarm from one hive, and not knowing from which they had issued, I searched for the queen, and was surprised to find eighteen; removing the eighteen queens, caused the bees to return to their hive, and upon examining the latter found several more. These bees, as well as nearly all the others, had destroyed the queen-cells I had given them, and raised cells from their own eggs. The season has been a very poor one.—W. J. G., *Ottery St. Mary.*

SURPLUS STOCKS.

I think the 'Humane system,' as I see many writers about bees call it, can hardly be carried out always by cottagers or others, who are only able to afford space for or time to attend to a few hives. What are they to do with their bees? If they live near an apiary, probably a great many might be taken there; but at a distance the trouble and cost of carriage would make it not worth while to send them. Also, if some were weak stocks, they might be united; but when all the hives are well stocked with bees, it seems useless to put two lots into one hive, and I should hardly think one hive would hold them full, as all the frames must be to maintain the increased number of bees throughout the winter.

I began the year with four stocks; I now have ten hives all full of bees, and none of the queens older than last year. If I unite one half of them to the other half I shall still have a hive more than I want to keep for the winter. I have hitherto given away to neighbours my surplus stocks, but most bee-keepers near are now in the same position as myself, and ask what they can do with their bees if they don't kill them; of course I am loath to give them any encouragement, but still it is nonsense to say they should not do so without being able to tell them how to manage.

We have had a bad July, constant showers, and very little sun; and unless a bright fortnight comes now, there will, I fear, be very little surplus honey in the hives. Last year, in this neighbourhood, the first half of August was the best honey time of all the summer—there was plenty of white clover out. As most people about here take their honey the last fortnight in August, will you kindly give me an answer about the bees in your next number of the *B. B. Journal*, for which I am now quite—AN OLD SUBSCRIBER, *E. Weather District.*

[If 'An Old Subscriber' would favour us with his address, we should be pleased to direct him how to dispose of his surplus stocks.]

BEE FLOWER.—WOOD SAGE.

I wish to add my testimony to that of W. Ingram on p. 117 as to the value of *Teucrium scorodonia* as a bee-flower. There are certain districts in Co. Down where it is very abundant, and the bee-keepers there had in 1881 and 1882 excellent harvests of honey, while we heard of little elsewhere. And as it flowers freely all the summer, and well on into the autumn, it is simply invaluable to the bees who are fortunate enough to be established near it. There should be no difficulty in cultivating it on a large scale, as it has a good habit, very like the garden sage, and would thrive in most soils. I do not think it would adapt itself to a very moist situation. It is best propagated by division of the roots.—H. W. LETT, M.A., *Ardmore Glebe, Lurgan, Ireland.*

HOW TO GET PLENTY OF SUPER HONEY.

The object of keeping bees may be admitted to be 'to get honey;' and yet of all the excellent books and articles that I have read about bee-keeping, I have not yet found any that give such advice about the mode of treatment most likely to produce this result as I have found by experience to be useful.

When I examined my stocks early in May I found one very strong, and I said to myself, 'This ought to produce 50 lbs. of super honey.' I decided then upon the treatment I would adopt, and I have this day taken off my thirty-first 2-lb. box fairly filled.

Of course the first principle was that they must not swarm: the first lesson I ever had from a practical bee-keeper was, that it is utterly useless to expect honey in considerable quantities if you also increase your apiary by your own swarms. I have for some years successfully aimed at this object, not by cutting out my queen-cells, or using queen-excluders in front of the combs (for neither of which operations have I sufficient time), but by systematically and gradually enlarging the hive, and so removing the principle, if not the only cause of their swarming,—namely, want of room.

My stock was about May 1st on eight frames, all full of honey and brood; to these I gradually added three with full sheets of wax foundation comb, each after an interval of about five days. About May 15 I placed in the rear behind a sheet of excluder zinc a frame with four sections. About May 20 I placed at the top of the frames a nest of six supers, and a second nest of six on June 20. I take off each nest when full, immediately substituting another.

I use Abbott's Standard Combination hive frames and 2-lb. sections. I took the four sections in the rear away on June 10, containing 7½ lbs. of honey; the first nest of supers was removed on June 16, containing 11½ lbs. the second, June 30, 10 lbs. the third, July 23, containing 16 lbs. second frame in the rear July 15, three sections 5 lbs. (one had been cut away earlier as they were not building it straight). Total, sections 31; lbs. 50.

When full work is going on this hive has two nests on the top, which can be removed separately. About the 12th of June, when one nest was nearly full, but the other not yet put on, I received word from my gardener that the hive showed signs of swarming. I immediately put on the second nest of supers to give them more room at home, and the danger was averted.

I may mention that I pursued this plan with three hives last year, and three this year, and not one of them has swarmed.

Now what should I have done, it may be asked, if they had persisted in swarming? I should not have added to the number of my hives, having already as many as I can attend to, and wishing to get honey, but I should have made every bee in the hive join the swarm, by placing a new hive on the exact site of the old one, and emptying this latter entirely by brushing off all the bees from the frames; these will of course fly back to the hive on the site of their old home, and there rejoin the colonists of whom they thought they had taken a lasting, if not affectionate farewell. I would next have placed half or two-thirds of the frames of the now empty hive, (according to the lateness of the season), in the new hive, adding from four to six new frames with foundation comb to gratify their building propensities (for they

would not believe they had swarmed unless they had something to build in consequence), and the rest of the frames of the deserted hive I should have placed in the centre of another stock or swarm, thus strengthening that immensely, and ensuring a good harvest from both. I did this with great success in 1881, when I got 70 lbs. from the two hives.

Of sections in the rear I observe that the bees do not work much in them after they have gone up into the supers. They seem to fill sections in the rear first at the beginning of the season; but when they are also busy in the supers, they comparatively neglect even half-built combs in the rear. Of course they do not want to have the trouble of carrying the honey right through the house to the larder behind the kitchen when by mounting a few steps close to the front door they can put it at once in a nice first-floor room.

I also notice that in the nest of sections the one nearest the front of the hive is generally finished off before that towards the rear.—C. C. James, *July* 23.

SHALL WE AGAIN ADOPT CROWN-BOARDS?

In the early days of bar-frame hives with single walls, and under the system then practised of leaving as many combs in winter as in summer, it was found that the moisture from the bees spread itself over the unoccupied parts of the hive, and there condensed, making it wet, mouldy, and unhealthy. To remedy this the close-fitting crown-board was done away with, and a porous quilt or bag of chaff was used to allow free upward ventilation.

I wish to submit for discussion in the columns of the *Journal* whether, under the altered modes of wintering by removing all combs not covered by the bees, and in the modern heat-conserving hives, with their three and four inches of cork-dust in the walls and division-dummies as thick, we are not wrong in retaining a plan devised to obviate defects in a system no longer practised. I believe that the moisture, as well as the heat, is required in the right place, *i.e.*, in the cluster. Do not we put a pan of water on a pipe stove because we find we require moisture in the air? Do not the bees protest against our ventilation by propolising the underside of the quilt? A skep is so completely propolised that water can be carried in it. Yet bees generally winter well in skeps. There are no cold corners for the moisture to escape into and condense, and it remains where wanted. I trust the whole subject may receive the attention which it merits before the time for wintering arrives.

My proposition is that, given a hive with non-conducting walls, and the bees confined to as few combs as they can be crowded on to by thick, non-conducting dividers, no heat or moisture need be removed except by the bees themselves; but they should be confined by an impervious cover over the quilt, by which I mean a single piece of stuff laid upon the frames.—F. Lyon.

FOUL BROOD.

The complaint is heard throughout the length and breadth of the land, that foul brood is not only troubling many bee-keepers, but that it is continually widening its area to such an alarming extent that unless the Associations take the matter into their serious consideration, a great part of their labour will be useless. Instead of bringing the improved methods into greater favour, many will become disgusted with what they call the new-fangled notions in bee-keeping. It may be said that the introduction of bar-frame hives will help to eradicate the disease; true, in proper hands. But I say, it is the bar-frame, in the hands of the inexperienced, that has been the great cause of the disease in this country. I am well aware of the rapidity with which the disease spreads by robbing, and indiscriminate handling, and extracting from infected and clean combs, after it has once shown itself in a locality; but who can deny that many a beginner, unwisely exposing his frames of brood, gets a lot of chilled larvæ, which being neglected decomposes, and creates the best possible nucleus for the fungoid growth of the disease; and that too in a district where, with the old fixed-comb hive, the complaint had never been known? And hence the responsibility of those, who, without proper restrictions, indiscriminately recommend the bar-frame.

Are the many Associations now in existence aware of the extent of the mischief being done? Surely it is not possible they can be ignorant of the fact, and yet why is the subject never mentioned, or any determined measures taken by them to put a stop the disease? What is to be gained by keeping the matter in the dark, and at the same time showing forth the flowery side of bee-keeping, inducing others to start in a district where it is known that they will come to grief?

It is time that Bee-keepers' Associations faced the truth, and endeavour to do something, especially to help beginners over this difficulty; not being satisfied to attend to those placing themselves directly under their notice, but let each Association hunt up every case in its own district. We know the process will add to expenses, but this will be more than compensated by the progressive state of bee-culture in the future, and members will then begin to know that their Associations have at least accomplished one great object, when they have eradicated the worst of all bee diseases.

But how is it to be done? is the next question. Of course to a certain extent, each Association must adopt its own course of action, suitable to its means, and the extent of its own district or county; but there is one thing that must be insisted upon, and that is, every expert must have a thorough, practical knowledge of the character of the disease, and know how to effect a radical cure. Without such knowledge no man is fit to receive a certificate as expert, though it is too well known that many of the so-called experts have not had the slightest experience of this plague.

If any expert has had no experience as to the nature and cure of the disease, he should obtain precise information regarding foul brood; and all future candidates should be refused if they have no practical knowledge of this most vital subject—the rock on which many fair hopes have been dashed to pieces.

This may seem hard on applicants for certificates, but unless the proposal be adhered to, both the Associations and their experts are likely to be in the position of 'the blind leading the blind.'

At a bee show, an expert of a prominent Association transferred a skep of bees to a bar-frame hive, when he and other bee-keepers *thought* it had foul brood, but could not say for certain; and after this doubt had been raised, the transferred bees were sold to a gentleman who had only recently commenced. We may be sure this is not the only case of the kind that has happened, either through the ignorance or carelessness of an expert. Ought such a thing to be allowed? That an Association should permit its own reputation to be ruined through the carelessness of its expert?

The same gentleman, before removing his bees to a new locality, had them examined by a well-known bee-keeper, who himself has had the disease, and I am sorry to say never gets rid of it, probably because he leaves the work for others to do. This bee-keeper told him that there was no sign of foul brood among his bees, and yet when the writer examined them immediately after reaching their destination, he found that two colonies had it, one of them being in an advanced state of disease, though it had been somewhat checked by a continual supply of fresh syrup it had been necessary to give to all his bees during that disastrous season of 1882. Some of

the other colonies had a little chilled brood, brought on by exposure during their journey, and this was at once removed by the bees; but the other two stocks, though one was still tolerably strong and hatching a few young bees, were unable to remove the putrid matter that had been in their combs for two or three months.

The bees were removed to an old skep, brought to the starving point, and then put on foundation in a clean hive, and fed with medicated syrup; no signs of the disease having been seen since. The old combs and skeps were burnt out of the way, and the hives scalded and disinfected, not being used again for some months.

If an advanced bee-keeper can be mistaken, it is evident that a very thorough knowledge of the malady is necessary, or its presence in any hive may escape the notice of the manipulator.

It is hoped that these few remarks may induce the Associations to take the matter with greater earnestness into their consideration; and I then believe if they enlist the aid of advanced bee-keepers, especially those who have been through the fire, getting each to work up his own locality, as he ought to be only too willing to do, if simply for his own sake, and then with experts who have made themselves thorough masters of the disease, we shall soon see the last of foul brood.—SAMUEL SIMMINS, *Rottingdean, Brighton.*

SYMPATHY.

I am the fortunate possessor of a wife who sympathises with her husband's pursuits and pleasures. When I first entertained the idea of bee-keeping, that idea met with such opposition as is needful for the due examination of, and argument upon, any important proposition. Upon the question being put to the house, the government (myself) carried the day, and the (theretofore) opposition duly supported the matter. As neither of us knew any thing about bees to start with, knowledge, chiefly of a valueless order, rapidly accumulated. The first thing we learnt was that we both swelled to a frightful extent when stung. We have learnt other things more useful and more amusing since then, among others that an immediate application of raw onion to the stung part will generally abate the swelling. But to proceed; some ten weeks ago my wife was stung on the eyelid, and whether the onion was too young and innocent (it was but May), or the application was misdirected, first the eye, then the cheek, and then the neck swelled, until that side of her head resembled in colour and texture a cold suet dumpling, the eye for a time resigning its duties and retiring from sight. Well, we survived that and took to veils and got on like fighting-cocks till last night, when a misguided bee stung her on the ankle. The soothing onion now older, stronger (much stronger), and presumably more up to its duties, was applied as quickly as circumstances would admit, and we sat down to our frugal meal, when what was our horror at perceiving that the eye which was stung three months ago, was swelling again! This morning, to use a low but forcible expression, it is completely 'bunged up.' Now sympathy is a very pleasant virtue, and one for which I have a great admiration, but I think it is misplaced in such a case as this.

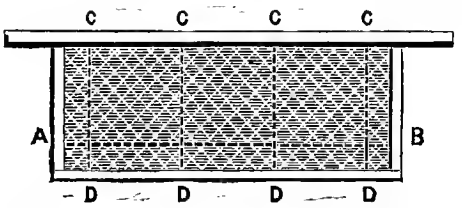
I have set the matter down as a warning to such of your readers as have sympathetic wives. They had better think twice before they keep bees.—T., *Tenterden, 4th August*, 1883.

P.S.—We have tried all the usual and orthodox remedies for stings, but have found none to equal a raw onion applied at once; it is always successful with me, but with my better half, not always, though generally.

STRAIGHT COMBS.

Mr. Clutten's article on 'Straight Combs,' in your last, has taken the wind out of my sails, as his plan is practically the same as one I have been employing, though not quite. You may possibly think mine worth inserting too.

If the top-bar has a saw scarf in it, slip the foundation into it; bore two holes with a tolerably large bradawl, one at A and another at B. Take a piece of thin twine, double it, pass the loop-end through the hole A outwards; slip a peg into the loop and draw it tight, then pass the free ends of the twine—one at each end of the foundation—through the hole B; slip in another peg, and tie tight. If the top-bar should have no saw scarf, stretch



twine from C, C, C, C, to D, D, D, D, in a similar manner to A, B. Should the twine not be tight enough, you can easily screw it up by means of the pegs, but be careful not to cut the wax with it. In my very limited experience, I have found the first plan answer admirably, but the second has hardly got beyond the theoretical stage with me yet.

The last few days I have been taking observations, with a view to turning my bees into a barometer. Will some one be so kind as to give a few hints as to how bees are affected by coming weather?—A. W. WARING, *Baltinglass, Ireland.*

AN OLD-FASHIONED BEE-KEEPER.

I am an old-fashioned and non-scientific bee-keeper, with many deep-rooted prejudices against the new-fashioned hives and new-fangled ideas. This aversion to new ways arises probably from ignorance and blindness. I have seen many of the new contrivances for getting honey, but I have not yet found any of my neighbours much more successful than myself in this respect. Herewith I send, for the benefit of the readers of your *Journal*, a note from my bee-book:—'June 1st, placed super on No. 1; July 3rd, removed super from No. 1, quite full, 30 lbs. of very fine honey.' From this statement your readers will perceive that on the old blundering system, with hives that cost 3*s.* 6*d.* each, 30 lbs. of honey were gathered in one super in thirty-three days, the main hive being as full as it could be when the super was removed. I replaced the super after it had been emptied, and I observe that it is being rapidly filled again. Will any bee-keeper on the new system kindly give the result of his plan during the month of June last, and thereby oblige—J. MCALLISTER, *Heathfield, Plumstead Common, Kent, 25th July.*

WORKER IN QUEEN-CELL.

If more queen-cells were cut open, perhaps the occurrence of workers in queen-cells would not be considered so exceptional. In cutting out queen-cells very few think of opening them. I was making up a case of bees of different varieties and other objects connected with bee-life, and I wanted to show a young queen in the queen-cell just ready to emerge. I cut open only three queen-cells, and in one of them found a fully developed worker-bee just fit to leave, and it had made a small hole in the lower end of the cell. I cannot say whether it had been unable to get out of the cell and thus died, or if the removing it from the warmth of the hive caused its death. It would be a question if a worker-bee thus hatched in a queen-cell would not be a *fully-developed* fertile worker, and *ready* and *capable* of laying

eggs *at once*, without waiting for a hive to be queenless; but would a fertile worker thus begin to lay if a queen were already in the hive? If a queen-cell containing a worker were left in a hive that had swarmed to requeen it, it might turn out a fertile worker. It would be interesting if some of our prophets would give their ideas. In giving a queen-cell to a queenless hive, this fact will now require to be looked after. If fully-matured queen-cells be carefully opened with a sharp-pointed scissors at the upper part, the young queen will almost immediately emerge, and can be placed between the combs. I did this successfully in three instances this season, and had many young queens hatch out in my hands when I did not require them. — J. Crosbie Smith, *Passage West, Co. Cork.*

SADDLER'S TABLET CANDY.—FLOUR CANDY.

In your last number 'Cornubia' asks how Mr. Hewitt's candy is made; and as Mr. Hewitt's way of making and using it is very troublesome and misleading, I beg leave to give you my way; and as I am a sugar-boiler by trade I hope I may be able to make it plain to every bee-keeper how to make this excellent bee-food. To 7 lbs. of sugar—Dutch crushed is the best,—add 6 gills cold water and a teaspoonful cream of tartar; put it in a brass or copper pan, and stir it occasionally to melt the sugar; do not stir any after it comes to the boil, but see that the sugar is properly melted. Boil it until when taking a little out with a spoon and putting it among cold water, it will form a soft ball between your fingers; set it to cool till it is lukewarm, and get ready as many broth-plates as you will require to hold it; put a sheet of paper into each plate, grease the paper if you want it to come off. Then take a stick and stir your sugar, work it on the side of the pan until it turns white or 'greasy,' as confectioners term it, then empty it into your plates and allow it to cool. To make flour candy add half a pound of peasmeal before you commence to stir it. But it will not need to be quite so high boiled if you are to add the flour; do not add the flour before you boil it, as Mr. Hewitt advises, unless you want it to boil on the fire; and before you take a second boiling be careful to wash all the flour out of your pan. Mr. Hewitt advises to use salt, but salt will not kill the grain of the sugar so well as cream of tartar, and unless the grain is properly killed bees carry a lot of the large grains of sugar out and it is lost. In using these cakes all you have to do is to lift the quilt and place one on the top of the bars, or with skeps set them on top with a hole cut to let the bees get at it. I sell a large quantity of it to bee-keepers here, and have used little else for the past four years. Last September I took all the honey from a stock covering twenty-eight Woodbury bars, and gave it 27 lbs. tablet at three times, two cakes 4½lbs. each time, and in spring it was very strong and only needed another 2 lb. cake.

I am convinced that if the above tablet is made as I have directed, it is only to be tried to bring it into general use. Putting it on the top of bars in autumn serves two purposes, viz. for food, and as a passage for the bees from one comb to another and that in the warmest part of the hive.—Jas. Saddler, 31 *East High Street, Forfar.*

P.S.—No honey here this year yet, top swarms starving.

CANDY.

I forgot to add a few words of caution when making candy, viz. after lifting off the fire to stir it, never put it on again unless more water is added, or it will almost be sure to be burnt. Also after boiling the first lot (when more is wanted) there will be a quantity found sticking to pan, which must be dissolved with hot water or it will get burnt also; the reason being that crystallised sugar will not melt by heat—at least in the sense we understand it—though heat helps water to dissolve it. The object of stirring it vigorously after boiling is to 'aerate' it, which causes it to crystallise; and as the water, except what is needed for crystallisation, has been boiled out, and as the quicker anything crystallises the smaller will be the crystals and the quicker will they dissolve again, we get our candy in the finest crystals possible, which is in the best possible form for bees to nibble at and dissolve with their saliva as they need it; we all know how difficult it is to dissolve very large crystallised sugar.

If the candy is poured out without stirring it will be barley-sugar—the best I know of; and if poured into a frame the same as I describe for candy, I fancy it would be the very best way of giving syrup, say between ends of April and August.—John Hewitt, *Sheffield, August 10th.*

QUEEN HATCHING.

On July 19th I removed a queen from a stock, about ten days after I removed all queen-cells but one. Some days after doing this, I examined to see if the queen was hatched; that was at the end of sixteen days, the time it is stated queens must be out of their cells: this cell I found contained a dead queen. I thought this a good opportunity for introducing an imported queen, which I did, as I thought successfully: that was on Saturday, 4th August. I examined and found her all right on Sunday; not being able to have a look at them on the Monday, I did on Tuesday morning. Could not find the queen anywhere; after searching all the combs, I examined the dummy which had, as I thought, nothing but drone-comb on it; however, it appears there was a cell or two of worker-brood; for I found a queen-cell, but it being the 7th August, and the nineteenth day since I removed the queen, I thought it was one raised from drone-brood, so I removed the lid, and found to my very great surprise, a living queen; and she crawled from the cell; but had I left her alone I think she would not have hatched for at least another day. She is a good-sized queen. It was a good strong colony, for the bees not only covered the bars well but hung on the outer side of the dummy; so I think it is hardly probable that the eggs were neglected, though I cannot account for it in any other way. Perhaps some other reader of the *B. B. J.* has had a similar experience.—Enoch Woodham, *Abbotsley, St. Neots, Hunts, 7th August.*

CURE OF A BEE-STING IN THE MOUTH.

On July 28th, whilst examining a hive, a neighbour's child, a little boy of five years of age, was stung far back in the roof of the mouth. Thinking of the notes from correspondents in recent numbers of the *B. B. J.*, I called to the mother to put earth into the child's mouth, whilst I ran and wet some whitening; this was put hastily into the mouth also, and to our great thankfulness there was no after pain nor swelling. The wound from the sting bled slightly.—G. C., *Ryde.*

LIME-TREES.

My experience from continued observation during the past thirty years is that honey-bees are very fond of lime-trees, and collect quantities of honey both from the leaves and flowers. As I write, a dozen limes close to my hall-door are full of my bees, and are so from early till late every day. The branches of these trees sweep the ground, and they are all over blossoms and bees; and I have noted that since the limes came into bloom my bees have been able to lay up stores in all my hives: in fact, this season has been so cold and wet up to the last fortnight that my stocks were gathering nothing. Now I am delighted to see what the lime-

trees are affording. I cannot conjecture why the bees of Mr. J. Hedding and 'G. A. R.' avoid their limes. Perhaps they are in some chemical neighbourhood, and the nectar of the trees gets poisoned, and one kind of bees are cunning enough to avoid it, while others fall victims. But, then, I too have often seen wild bees dead, and with all their juices extracted under lime-trees, which I set down as the work of coleoptera, who found the wild bees benighted, as often happens in other flowers, and robbed and left them dead. Unless your correspondents are mistaken as to what are honey-bees and "insects" (see "G. A. R.'s" query No. 664), the avoidance of the limes referred to, and the circumstances of their localities, are most interesting fields for inquiry, and well worth discussing in your pages.'—H. W. Lett, M. A. *Co. Armagh.*

[We have received from two correspondents specimens of wild bees found under the lime-trees; in the one case, the honey-bag was punctured, and in the other, all were decapitated.]

CARRIAGE OF BEES.

A curious, and to me an unusual, circumstance occurred to our expert and myself relating to the carriage of bees. It has been our custom in bee-tent engagements to take a skep of bees with us, whether travelling by road or rail. A short time ago we had occasion to travel by the G. E. R., to a small town about twelve miles away; upon our return, the porter seized the skep of bees, weighed them, and charged 11*d.* carriage for twelve miles, the bees, I may add, we took charge of ourselves. Now the question arises, What is luggage? Is a mechanic travelling to his work with his basket of tools to be charged for luggage? If not, why should our expert, with his bees, be so charged? In both cases the 'luggage' is necessary to the man in his day's work, and without his 'tools,' or 'bees,' he might as well stay at home. I have not mentioned the case to the Company, but have accepted our station-master's opinion 'that bees so carried are chargeable.' They, like us, must take the consequences, which means loss of fares from us when upon bee-tent work, and we shall substitute a horse and trap, which is as cheap, very convenient, and quite as pleasant.—G. H. Aubrey, *Springfield, Essex.*

TAKING BEES FROM CHURCH.

A colony of bees had been established in the roof of the church here for many years. The church being under repair, it was necessary this year to dislodge them by fair means or foul. I therefore determined to try and take them, but the attempt was not made till July 25th. Their entrance was through the joints of the stonework of the parapet at the west end of the nave.

The plumber removed the last roll of lead, and we then found they were under the boards at this point—between the boarding and the top of the wall, which is about a yard thick. The carpenter, who is used to bees, began to cut off the planks, veiled, but without coat or gloves, but soon had to retreat for more defensive armour, the bees naturally resenting the sawing of the roof of their house. At last he completed his work, and we carried the comb into the ringing loft, which has a door opening on to the top of the roof, and cut it up and tied nearly all the brood and a little honey into six or seven frames, put them into a hive without a bottom, and placed this over the place where the nest had been.

At 7 p.m., I tied the hive up in a cloth and carefully lowered it to the ground and took it to my garden about 150 yards off. I shut them in and kept them closed next morning, taking only a peep at them under the corners of the quilt, when a dozen or so escaped. I found there were not so many as I had hoped. While at luncheon, at 1.30, looking across the field towards the church, I was just going to say, 'What a cloud of gnats!' when I perceived that they were bees. They came and settled on an arbor vitæ, about five yards from the hive where their companions and brood were. I watched them all settle, and then went to the church. I should say that I had visited the church in the morning, and found the bees very numerous at the old spot, which was still open. Now, however, I found only a few stray ones, so there was no doubt that the swarm had come from the church. I therefore went back and hived them in a skep, and, having put the hive on a newspaper and opened the flight-hole, threw the swarm in front of the hive, which they soon entered. Four days afterwards I overhauled the hive and found the combs nearly all attached more or less to the frames; the bees were very quiet and quite peaceable. They now seem quietly at work, as if all was well with them. I gave them a small allowance of food every night for a week. I can only suppose that some of those that escaped from the hive went back to their desolated city, and said, 'We can show you where our nest and dear little ones are; come and join them.' The queen I should guess, from their behaviour, though I did not see her, was with the swarm. For a day or two a few stray ones were hovering about the old spot, but there are none there now. There was not a great deal of honey—I took about 5 lbs., besides what was spilt and what was tied in with the brood into the frames.—C. W. Hony, *Bishop Cannings Vicarage, Wilts.*

RESCUED COTTAGERS' BEES.

The following may encourage others to try the experiment of saving the bees of cottagers from the dire ending of fire and brimstone:—On August 30th, 1882, I drove the bees from three skeps for a cottager. Gave one-third of the combined mass of bees to a weak Observatory hive, and placed two-thirds in an *empty* Neighbour's Improved Cottager's Hive, which we will call A. Fed with sugar-syrup for some time; the amount of sugar not been accurately apportioned (as other stocks were fed out of the same boiling), but certainly not exceeding altogether 12 lbs., which, at, say 4*d.* per lb., equals four shillings. On May 23rd the stock A swarmed (I keep a diary of all events in my apiary, and therefore know the age and circumstances of every queen, particulars of every stock, &c.), and the swarm B was hived in another of Neighbour's hives. On June 6th the swarm B was supered, and at once took possession of the super. On June 8th the stock A gave a second swarm, C, which is now doing well. On July 24th the first swarm, B (in spite of the super), sent out an enormous maiden swarm, D, considerably larger than most first swarms. Yet at this moment, August 4th, the first swarm, B, is steadily filling the super. Therefore in one twelvemonth, at a cost to me of four shillings, I have obtained tenants to occupy four hives.—A. Malan, M.A., *Perranarworthal Vicarage, Cornwall.*

OBSERVATORY HIVE.

I am pleased to observe from your last issue that my communication on this subject has at length elicited some response, and I thank 'Amateur Expert' for coming to the rescue. The queries, however, which he puts are just those to which I myself, as an amateur bee-keeper, seek an answer. The 'kind' of hive I desire to possess is that which, in regard to the number of its frames, and indeed in every other respect, may be most suitable to attain the object in view. That it must be 'simple and cheap' goes without saying, for the fact that these necessities are absent from all observatories in the market was the sole cause of my inquiry.

I thank 'Amateur Expert' in anticipation of his advice and help, and am convinced, if his experience will enable him to impart the necessary 'plain and practical instruction,' that he will largely conduce to the advancement of that pursuit in which we are all interested.—Ebor.

FERTILE WORKERS.

Being asked for my views on the subject of fertile workers, I will endeavour to comply with such request, hoping that it will be the means of bringing out discussions that will be the benefit to us all.

What are fertile workers?—They are worker bees sufficiently developed to be capable of laying eggs, but their eggs, like those of a virgin queen, always produce drones.

How are fertile workers produced? Langstroth says: 'It is a well-known fact, that bees often begin more queen-cells than they choose to finish. It seems probable to me, therefore, that when rearing queens artificially, they frequently give a portion of the royal jelly to larvæ which for some reason they do not develop as full-grown queens, and that such larvæ become fertile workers.'

Berlepsch advanced nearly the same theory. Huber thought that fertile workers were usually reared in the neighbourhood of the young queens, and that they received some particles of the peculiar food or jelly on which those queens are fed.

Quinby claimed to have disproved the theory of Huber. My experience fully sustains Quinby on that point.

Cook seems to side with the Langstroth and Berlepsch theories, but does not seem decided and gives no theory of his own, and King gives no theory on the subject.

Root, in his *A. B. C.*, claims that the organs of a worker bee may become *at any time* sufficiently developed to allow the bee to lay eggs.

I must differ with the various theories advanced in regard to the manner in which they are produced: I have seen many cases in full colonies, but as yet I have never known them to exist in a colony that had hatched a young queen and lost her in her wedding flight. Such colonies may remain queenless for months and no fertile workers will make their appearance. This disproves the theories of Huber and Root. The queen-cells may all be cut out on the seventh day after the colony becomes queenless, and you will have a case of fertile workers. This will not fully sustain Langstroth and Berlepsch, although they are nearer right than either of the other authors, and had *they* experimented further, I believe they would agree with me, That fertile workers are produced by feeding royal jelly to larvæ that are about to be sealed or capped over. The bees being deprived of the means of rearing a queen, they resort to the next best thing—uncapped larvæ—which may yet take a portion of the royal jelly before being sealed over.

Cause of fertile workers.—Root in his *A. B. C.* says:—'Whenever the bee-keeper has been so careless, as to leave his bees destitute of either brood or queen, for ten days or two weeks, you may be pretty sure he will find evidences of their presence,' etc.

Alley, in his 'Handy Book,' says:—'They are generally produced by allowing a colony to remain queenless for a long time, appearing sooner in nuclei than in full colonies.' He further says that when the bees ball the queen after returning from her wedding flight, one may know that fertile workers infest the colony.

Prof. Cook says:—'The conditions that favour these pests, is continued absence of a queen or means to produce one.'

It seems to be the general impression that they are caused by the colony remaining queenless for a long time. But I have always found it to occur between the tenth and sixteenth days after being deprived of a queen, and then not unless their cells are destroyed as stated above. If the colony lose their queen on her wedding flight, or if the hive contains no brood—as Root says—no fertile workers will make their appearance, even if the colony remain queenless until they dwindle entirely away, but if the queen-cells are destroyed on the seventh day after the colony is deprived of their queen we will invariably find fertile workers laying just before the last brood hatches.

It is no sign of fertile workers when we see the bees ball their queen: I have seen bees ball and kill their queen upon opening a hive and shaking the bees from the combs into a new hive; again it frequently occurs that the bees ball a virgin queen after she returns from a successful flight with the drone, and is caused by a change of scent or odour the queen takes while with the drone.

To get rid of fertile workers.—In most cases I have found that by inserting one or two queen-cells,—just before they are ready to be sealed over,—in such hives, the bees will complete the cells and destroy the fertile workers. If they destroy the cells, then give them two or three frames of brood with the adhering bees, taken from some strong colonies, and they raise a queen thus superseding the fertile workers. The frames of brood should contain eggs and larvæ.—G. W. House, *Fayetteville, N. Y.*, (*The Bee-Keepers' Guide.*)

QUEEN-ENCASEMENT.

There occurred two cases of queen-encasement in my apiary on Monday, July 2nd, which, I think, deserve a passing remark. On that day I had two prime swarms. The parent hives I will call Nos. 1 and 2. No. 1 swarmed about ten o'clock; I hived it in the usual way. After it had settled down, I removed the swarm into the garden, intending to return it to the parent hive in the evening; but in about half-an-hour they showed signs of not having any queen, and they slowly returned to the old hive. When I thought they were all gone, I turned up the hive, and found the queen encased on the floor-board, and about a handful of bees running about. I separated her from the bees, and tried all means that I could think of to get them to take to her again, but in vain; and at last I killed her out of pity's sake.

No. 2 swarmed later on in the day. It was hived, but in a short time the bees began to return to the parent hive, not in the usual way, that is, gradually, when they have no queen with them, but they began to come out of the hive the same as they do when they swarm. Those only returned to the parent hive that were on the wing, the others settled down as if all was right. But the same thing was repeated two or three times at intervals of about half-an-hour. Thinking that something was wrong, I turned up the hive, and, to my surprise, I found the queen encased as before. I placed the hive on the old stand, after removing the parent hive a short distance, thinking the bees might take to their own queen when they came to be left to themselves; but the moment I placed her amongst them, they set on her most savagely: they seized her by the shoulder, and twisted her wings round in a most cruel manner. I got a cup with sugar and water, and put the queen in along with one or two bees that would not let go their hold of her; they stuck to her even when they were at the bottom of the cup. I saw it was all of no use, so I placed the parent hive near the floor, and the hive containing the swarm on the top, with one entrance over the other; and having separated the queen from the bees, I placed her with the bees in the top hive, and left her to her fate. In the morning I found the bees clustering from the top entrance down to the floor, and the queen on the floor under the cluster dead and stiff.

Now, I wish to say that No. 1 contained a queen of two summers, so I should not have kept her for another year; and if it had not been for No. 2, I might have thought that the bees had discovered some signs of decay in her; but No. 2 contained a queen only twelve months old. No. 1 were common black bees; No. 2, half-bred Ligurians. If there had been anything the matter with either of the queens, we might naturally have supposed that the bees would have disposed of them without swarming; but why they should actually swarm and then fall upon their queens and destroy them remains a mystery to me.—W. Humphreys, *Apiary Cottage, Cuddington.*

Echoes from the Hives.

East Derbyshire, August 11th.—The season in this neighbourhood has been most disappointing. The end of June and the first week in July were all that could be wished—weather warm and fine, and honey most abundant; but for the last four weeks nothing has been gathered. Although there has been plenty of white clover and lime-blossom out, the constant cold and wet entirely stopped the secretion of honey, so that even when the bees managed to get out for a few hours there was nothing whatever for them to gather. Half-filled sections have been emptied, and almost all stores consumed, so that now there is little to be done but feed up liberally and hope for better times.—G. S.

Devon.—The month of July was far from promising to the bee-keeper, the weather on the whole was thundery and cold. Storms of rain, and no sun, have rendered it next to useless to honey-gathering; stocks, although strong to overcrowding, have done nothing, and one has seen the magnificent harvest slipping through one's fingers, and found pounds where hundredweights should have been, and large numbers of sections, which were being beautifully filled at the beginning of the month, were not one scrap advanced at the end. There is hope for those in the heather districts still; and as I write now in the neighbourhood of Ottery St. Mary, the country around is beautiful in its purple hue. Stocks on the 'let-alone' principle have stored but little; those used at the various shows for manipulations had next to no honey. The weather report for the month is: total rainfall, 4·71 inches, most in 24 hours 96 cents, on the 4th; and we had 25 wet days. This was only 2 cents lower than the rainfall of the corresponding month of last year.—W. N. G., Hon. Sec. D. & E. B. K. A.

Dorset.—What with the rain and very little sun this will be the worst honey-year we have had since the formation of the Dorset Bee-keepers' Association. Although the heath has been in full bloom for a month, the bees find there is little or no honey in it. This is the more discouraging, as the season opened with such good prospects. The slaughter of the drones is generally taking place.—W. H. Dunman, junr.

Hants, South Warnborough, July 31st.—This month has been unusually cold with frequent showers. An abundance of white clover and lime-blooms, but want of sun and chilly nights have prevented these bearing much honey. As indications that the honey season is drawing to a close, the bees are killing their drones, and propolising their quilts to the bars to prevent draughts and the incursions of bee-pests, such as earwigs, ants, and wasps. The honey harvest in this locality is not more than an average one, but the quality of the honey, particularly that got from fruit and sanfoin blossoms, is very fine.

Hertford, Aug. 11.—The weather is making the outlook very gloomy, but bee-keepers generally are in good spirits about here. Bees strong in spring have done well—not so strong, only middling,—but all have given some surplus.—J. P. S.

North Leicestershire.—There were twenty-three wet days in July, and on seven days of the eight now past in the present month rain has fallen, sometimes heavily, putting an end to all hopes of a successful honey season. Clover and limes are still in bloom, but the bees have no chance of collecting from them on account of the stormy weather. The general state of things is, bees in abundance but little or no honey; in fact, the season is once more a failure, though not so thorough as last year's. Here and there a stock which has not swarmed will yield a small return; but swarms already require feeding, and the stocks from which they came will hardly pass the winter without assistance. So bad was the weather in the middle of July, that a remarkable fine cast only built two square inches of comb in a week. The total rainfall for July was 3·01 ins., in August up to date (8th) ·54 in. The highest temperature in July was 80° on the 1st; the lowest 42° on the 16th. On several days the thermometer stood nearer to 50° than to 60°.—E. B.

Cairnie-by-Keith, N.B.—Up to the present date, August 7th, bees have done nothing (in this district at least). In some parts of Scotland they have done well; the white clover is almost gone, heather is looking splendid, and strong hives with two weeks of good weather would do something yet. As a rule stock hives are very strong in point of numbers.—A. Cockburn.

Leslie, Fife, 9th August.—Since my last 'Echo,' a month ago, things have gone from bad to worse. From about the 20th June till now we have had almost continuous rains and cold weather. For the month of July alone the enormous rainfall of 6·6 inches was registered here; and I observe, from the meteorological report for Scotland, that the month of July has been the coldest experienced for many seasons with the exception of 1879. Under these adverse circumstances it is no wonder that not only has there been no honey collected, but swarms everywhere which were not fed and attended to have died of starvation. At the middle of June there were plenty of sections filled ready for sealing, but now these are all emptied. Some hives which I examined last night had ten frames nearly full of brood, and this explains where the section honey has gone. It is too late now to hope for any good return this year, even though the best of weather were to set in; so we can only write down 1883 as a bad year, the third in succession, and exercise patience till the good times come again. As a result of the unfavourable season the Fifeshire Bee-keepers' Association's show fixed for 6th and 7th August had to be abandoned, only one member offering anything for show. At the Auchtermuchty Flower Show on Saturday, 4th August, in the Bee Section only nineteen one-lb. sections and four pounds run honey were tabled along with a cake of wax. Such is the poverty of Fife this year.—J. L.

Dublin Co., N. Ireland.—The weather for four weeks has been so cold and wet, the honey prospects seem very bad. For the first fortnight in June supers were being rapidly filled: I have ten splendid swarms all supered; no honey has been added to what was stored in early June. In some cases of supers almost sealed the honey is of late steadily disappearing. A fine August may yet give a fair yield, as white clover, and other good honey plants, abound in the neighbourhood still. But all hopes of a good honey yield in supers this year seem at an end.—N. I. L.

Ballycassidy, Ireland.—In this locality—the north-west of Ireland—bee prospects are not good. I fear it will almost always be so. This part of Ireland is generally wet and cold, even in summer; and the pasture for bees is not so good as in England, because there is no white clover. In the east and south-east the climate is more dry, and there is more sunshine; and there the new high-art system of bee-culture may, perhaps, be worked with profit. But for the reasons given, I think this system cannot in this part of the country be worked *profitably*. Abundance of bees may be raised, indeed, by those who do not fear the expense of feeding; and one gains abundance of knowledge, as well as abundance of stings. But as regards the thing chiefly looked for—sections of honey—the produce, so far as my experience goes, is *nil*. My experience is not, indeed, of long date, though given without any sparing of care or expense,—and something might be allowed for want of skill. But I observe that in a recent issue Mr. Crosbie Smith, of Cork, whose skill must be greater than mine, and who certainly works in a better locality, is coming to the same conclusion, and records his conviction that bee-keeping

there must always be only a 'hobby.' That it is an exceedingly interesting one is true; and for those who love natural history, and can afford to indulge their tastes, it is by all means to be recommended. But to cottagers, whether *bonâ fide* or *malâ fide*, it cannot, as yet at least, be honestly recommended as a financial investment. It is much to be regretted that there is no white clover. Why there should be none with such abundance of red, I have not been able to discover. But farmers, I suppose, know their own business, and cannot be expected to arrange their plans with a view to obliging amateur bee-people. Not being able to get it from my neighbours, I have now sown an acre, experimentally for my own bees, and next season may be able to tell how far this will affect the bee prospects for the better.—S. L. B.

Co. Cork, Rathcomsey, Ballinacurra.—I fear the report of this year's honey harvest will not be favourable; the bad weather in June and July caused bees to eat up all their stores to support crowded hives; they have now but little sealed honey left, and little coming in: though I see buckwheat literally covered with bees, still I think it cannot produce much honey. However, if the weather was more favourable, it might be otherwise; but little time remains to them now to lay in sufficient to support themselves through the winter; buckwheat and ivy alone remaining. Stocks must be carefully looked over and fed up, or a long list of losses will be registered in the spring. Drones nearly all killed off, bees closing up in the hives show a disposition to go into winter quarters, unless that is caused by the winterish weather we are now experiencing.—J. J. S.

County Cork, Passage West.—From the 16th June to about the 25th the weather may be summed up in one word 'rain,' and ever since then to the present (7th July) there have been few really summer days. In a very few instances up to about 40 lbs. of honey have been gathered in supers, but 10 to 20 lbs. per hive is about the usual yield (where any at all was got); and if that was not taken before the bad weather set in, the bees had to consume it. Notwithstanding such very disheartening circumstances, many are showing a growing interest in modern bee-keeping; but to go on under such adverse experiences, bee-keepers must be enthusiasts, and they strongly resemble the disciples of Izaak Walton, who are always living in the hope and happiness of getting a nibble. My experience of numerous hives is that in the long one-story hives the bees fill the brood-chamber with honey too much before they go into the supers at sides or back, and that in taking the surplus honey there is little risk of leaving them without stores; but with crates on top (if put on soon enough) they have in many cases put nearly all the honey in them, and fill the frames with brood. In such cases, when supers were taken off, bees were in a very risky state if not looked after, and have known some hives with brood in them to have been deserted. The careless or ignorant will lose many stocks, if not fed up for the winter. Instead of preaching wonderful profits from bees, it would be wiser to teach 'small expectations.' — J. Crosbie Smith.

Tinahely, Co. Wicklow, Aug. 6. — Whilst some are asking advice as to how to take off section-honey, others are deploring bad honey harvest—such is Weather, that awful jade. The mountain heather on the grouse-preserves shooting into bloom, 'our favourites' are basking amid the heath-clad hills of their native 'home.' We have twenty bee-keepers for the one we had five years ago. Some few people believe there is a little of the 'black art' in the business. When you offer good prices for swarms they will not accept terms, or sell on any conditions, as they believe you would take their 'luck;' but then it has a tendency to make them pay more attention to their bees as you teach them the value of an article that hitherto was worthless. Honey in any quantity can be sold at our Metropolitan Dairy Show in Dublin, and it is unwise to ask people to send forward honey to shows except when going themselves. The railway companies give excursions from all parts of Ireland at such times at single fares, and bee-keepers could then deliver their honey upon the counter second day of show, which ought to be time enough for judging and sale. No restrictions should be placed on removal after sale, and clerk in attendance should be prepared to settle with seller at once.—J. Traynor.

Queries and Replies.

Query No. 677.—*Twin Hive.*—I am making a hive to contain two stocks of bees, and would prefer to have the entrances one at the side and the other at the end. Is there any objection to this plan? I notice that most makers have them with the entrances at each end. 2. *Young Queen.*—Where a colony is rearing young queens could I by a frame of excluder-zinc prevent the old queen from entering the combs in which the queen-cells are? After the young queen is hatched, I would propose to cage her in a pipe-cover cage. 3. *Destroying Drones.*—Yesterday I noticed that the bees were banishing the drones, and in the evening when putting them into another hive, saw hundreds of dead drones on the floor-board. On one of the combs I noticed grubs in a few cells. What do you think is the cause of the bees destroying the drones so early in the season? 4. *Turning out Brood.*—I notice some of my stocks carrying off young brood. Does this necessarily imply that the queen has stopped laying, and that the workers are destroying the brood owing to scarcity of honey? 5. *Uniting Stocks.*—I united two stocks lately, but though I sprayed them with scented syrup, they fought viciously till all the new comers, I believe, were destroyed. An eminent authority informs me that this fighting would not have occurred had I put a slice of onion in the hive entrances the night before uniting. What is your experience with regard to the 'onion method'? 6. *Supering.*—Should a stock be supered before the frames of foundation are all worked out below, or before they are filled with honey and brood?—Tyro, *Co. Donegal.*

Reply to Query No. 677.—1. There can be no objection to the plan proposed. 2. This plan would be nearly sure to fail, as a young queen can get through excluder-zinc. 3. By giving your bees plenty of room they intend not to swarm, therefore the drones are useless incumbrances to the hive, and the bees are turning them out. Feed with pea-flour candy, and get the queen on to laying again. 4. Turning out brood is usually a sign of starvation, but as the bees have been fed regularly, the brood mentioned may be chilled. 5. It seems that the syrup used was not sufficiently scented. We have never tried the 'onion method,' but should not imagine it had any particular virtue, except its powerful odour. 6. It would not be wise to super a stock until most of the frames are pulled out, or until the hive is strong with bees and brood.

Query No. 678.—1. *Leaving Sections on Hive.*—Should sections be left on hives (bar-framed) longer than three weeks if unfinished? 2. *Removing Supers.*—Should the supers be removed from hives where drones are killed and cast out? 3. *Extracting from Supered Hives.*—Is it customary to extract honey from a hive which is supered? Would not the removal of super while extracting seriously disturb work and unsettle temper of bees? 4. *Bees in Church Roof.*—Three years back some bees took possession of church roof here, and have been very strong; about eighteen days ago they all disappeared. Why? Is it possible that they have filled up the space between two rafters, and not having access to more deserted the spot? I should be glad to know,

as there may be honey to be got, while, unless some certainty could be assured, it would not pay to open the roof.—THOMAS STOTHARD, *Pagham, Bognor.*

REPLY TO QUERY No. 678.—1. Yes, if there is still honey coming in; but—2. from the drones being killed off, it seems that there is no longer much income, and thus useless mouths are got rid of; in this case remove the sections, or they will be emptied and the honey carried down into the hive. 3. When large quantities of honey are coming in it is proper to extract from the brood-nest, or the queen will be crowded out by the brood-nest being filled, and so the population of the hive decrease; under these circumstances the bees soon settle to work again. 4. In all probability the normal occupants of the church roof disappeared some time ago, most likely by the queen dying in the winter. What you took to be strength and activity was the industry of robber bees, which had found the unprotected hoard of honey. This being all exhausted they no longer visit the place. Most probably another year a swarm will again take possession. If you wish to prevent this you must remove every vestige of comb and stop the hole or holes.

QUERY No. 679.—1. *Driving condemned bees.*—After driving bees from a skep, is it practicable to drive another skep into the one that already contains the bees just driven, by sprinkling both lots with scented syrup, or must they of necessity be mixed in the usual manner, in order to unite peaceably? 2. *Brood on unused combs.*—When the number of frames in a hive are reduced in autumn, what is to be done with sealed or unsealed brood that may be on those taken away, if there is no other hive into which to put the frames:—simply put aside. Will the dead brood contaminate the comb? 3. *Amount of Winter Stores.*—Mr. Cowan states that a hive should contain about 30 lbs. of sealed stores when packed for winter, and, in another place, he mentions two square feet of sealed comb as being sufficient. Is there not at least a difference of 10 lbs. between these estimates?

REPLY TO QUERY No. 679.—1. You can drive two lots into one skep, but the more simple plan is to drive into a separate one; put one skep containing the driven bees on the ground, mouth upwards, put the other on it, mouth to mouth, lift both together, and smartly bump them on the ground. As they will be thoroughly gorged, the bees will not fight, but the queen of one lot will be killed. No scent will be required. 2. When the time comes to reduce the number of combs, any brood will be in the middle ones, which you will not touch. To put away combs with dead brood in them would spoil them for future use. 3. The weight of comb depends upon the thickness to which the bees have elongated the store-cells; two square feet would hardly weigh 30 lbs., but it would be a good store to leave; a skep weighing 30 lbs. gross weight, skep, bees, brood, if any, pollen and honey, is sufficiently stored to stand.

QUERY No. 680.—*Wax-moth.*—I have a straw hive of combs, but they are infested with the honey or wax-moth. How can I destroy them without making the combs objectionable to some driven bees?

REPLY TO QUERY No. 680.—Strong stocks are never injured by wax-moths. Drive the bees from the skep, sulphur the hive, and take care that all the pupæ are destroyed that may be on the combs before admitting the driven bees.

QUERY No. 681.—1. *Ripening Honey.*—Some advice as to a simple method of ripening extracted honey would be very acceptable. 2. *Uniting.*—In uniting swarms after the honey season is over, is it well to leave the bees to settle which queen shall be left? and is there not a danger of the one swarm flying back to the location of its old home, where all the swarms have to be kept in the same apiary, and within some six feet of each other?—N. I. L.

REPLY TO QUERY No. 681.—1. See 'Useful Hints' in our last issue under 'Ripening Honey.' If the honey be placed in a crock or jar, and this placed in a stewpan, or other utensil, the jar standing on a piece of wood at the bottom of the pan, and surrounded by cold water, the whole being placed over a slow fire, and gradually brought to a temperature of 200° Fahr., not quite boiling point, the watery particles will be expelled from the honey. When tepid the honey may be placed in bottles or glass jars and tightly corked, the corks having been first dipped in melted wax and the necks of the bottles dried. Honey thus ripened will keep liquid any length of time in a moderate temperature. 2. Before uniting, the hives should be brought close together by moving one, or both, a few feet every fine day. Unless one of your queens is a choice and valuable one, it is as well to leave the bees to settle matters for themselves. As a rule the turned-out queen perishes when ascending, the combs being seized by the bees in possession. If both colonies are driven, we should destroy the oldest queen, and shaking the bees all together, with a sprinkling of thin, scented syrup, allow them to fraternise while ascending. This refers to skeps only. With frame-hives the matter is easy enough.

QUERY No. 682.—1. *Packing Honey.*—Mr. Anderson, in his speech at Dalry, Ayrshire, said 'We bee-masters want to give attention to our stocks and marketing-honey.' How is the best way to pack honey in comb taken from skeps? 2. *Strong Stocks.*—Is it best to keep the stocks up large as the Scotch bee-master advised?

REPLY TO QUERY No. 682.—1. There is no safe way. We should feel inclined to place the comb in a shallow box in the same position which it occupied in the skep, wedging in rolls of paper between the combs to prevent lateral motion. 2. Yes. The most important motto in bee-keeping is—Keep all colonies strong.

QUERY No. 683.—1. *Extracting.*—Which is the most profitable and best method—To extract all the honey from the bar-frame hive at the end of the season and feed the bees up quickly with syrup, or to leave sufficient honey for their consumption during winter? 2. *Food for Bees.*—2. Which is the best food for bees—honey or syrup? 3. Could you not give us directions how to glaze sections of comb honey in the *Bee Journal* for Aug. 15?—A. S. B.

REPLY TO QUERY No. 683.—1. We prefer extracting the outside combs only, leaving the four or five central ones undisturbed; for, although bees will do well on good syrup, we think they do better on sealed honey, which should be gathered in the early summer. Clover honey is the best food for bees, and all the autumn-gathered honey should be extracted. 2. When using syrup we prefer that made from cane sugar, and always purchase the West Indian or Porto Rico—a brown sugar, at 3*d.* per lb. The syrup from loaf-sugar granulates more readily, and is not so wholesome. The greater portion of loaf-sugar is made from beetroot, which should be avoided. 3. There is little difficulty in glazing sections. The glass should be cut the exact size of the inner side of the section and pushed in without cement or any other adhesive matter.

QUERY No. 684.—1. *An Unfertile Queen.*—I drove a swarm from a straw skep on the 15th June. These do well. On the 7th inst. I drove the stock into a bar-frame hive containing half-a-dozen frames filled with foundation. These have been drawn out and partially filled with honey, but no eggs have yet been inserted in the cells. The queen seems lively and healthy. Is this unusual; is there anything wrong? What would you advise? 2. *The contesting Queens.*—Again, if a cast be added to a swarm a week older, one of the queens is supposed to be killed; which of them is it that dies, the older or the younger?—J. GEBBIE.

REPLY TO QUERY No. 684.—1. The probability is that during the driving operation some injury has be-

fallen the queen, which has prevented her from performing her functions. As the hive must be suffering from this suspension of her duties, it would be desirable to dethrone her, and substitute in her place a fertile and vigorous one. 2. In the mortal combat between the two queens, the queen at the head of the east, being younger and more active than the other, gravid as she is with eggs, will most probably come off victor.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Censor, *Sawston, Cambs.*—If four judges have decided that one kind of honey is more worthy of a prize than another, it would not be becoming in us to arraign their judgment.

Compton Basset.—*Uniting.*—Drive the contents of the skep to be united to the bar-frame hive into an empty skep, turn it over, and sprinkle it with scented syrup, smoke the bees in the hive about to receive them, and sprinkle them also with the same syrup. After a short interval cast the driven bees down on a board or a newspaper before the entrance; and do the same with all the stocks to be united. 2. *Transferring.*—In transferring bees from skeps into empty bar-frame hives, it would be desirable to utilise the combs of the skeps containing brood and pollen. 3. *Time for transferring.*—Autumn is a very favourable time for transferring.

H. Potter, *Hildersham.*—1. *Pollen.*—The small piece of comb forwarded does not contain 'what is called foul brood,' but is honest, healthy pollen. 2. *Uniting stocks.*—The plan you have suggested of driving the bees and feeding them will enable them to pass the winter with a fair prospect of your having a strong stock in spring. Unless you know which of the spare queens is the younger, you had better let the bees settle the matter, trusting that the fittest may survive. 3. *Spare frames.*—Doubtless the frames of sealed honey will prove very acceptable to the driven bees, and will be thankfully received by them.

Anon.—*Uniting and Transfering.*—1. Catch the queen not required and remove her. Cage the queen intended to be kept, and unite the bees using the scent-diffuser. 2. Transfer bees and combs in the usual way using the best combs only, and take any surplus honey. This may be done any fine day.

J. P. A.—*Chilled Brood.*—The comb sent is not infested with foul brood; it is a case of 'chilled brood.' This in summer is frequently caused by injudiciously spreading the brood. The cluster of the bees not being able to cover the brood, has moved in another direction, causing the death of the brood. In winter, it is caused by cold, draughty hives. Chilled brood, however, is an active element in the causation of foul brood, and, therefore, the sooner its presence is banished from your hive the better. Either cut it out, or change the comb.

Rev. H. G. H.—1. *Borage.*—As the blossoms of borage are produced successively on the forked cymes or flowering branches, and not at one single period, it follows that the nutlets ripen with the same irregularity that attends the production of flowers, and the earliest fall while the others are unripe. The best plan to pursue to save the seed is to choose the time when it is estimated that a fair proportion of seed is sufficiently advanced, and mow the plant close to the ground with a scythe, and then let it be spread thinly over a floor or cloth on level ground, so that the seed may be readily collected; the sap in the succulent stem and leaves will help to ripen the seed. 2. It is an advantage rather than otherwise that bees should be kept from long flights, but at any rate they are the best judges.

C. W. Rawlinson, *Barnes.*—1. *Earwigs.*—We are at a loss to conceive how any bee-keeper could allow such a calamity to happen as the destruction of a hive by earwigs. Earwigs seek the shelter of hives from their desire for warmth. The remedy against them is to have the hives well made, and to keep the stocks strong. 2. *Wintering.*—In Mr. Cowan's *Guide-book*, in the chapter on 'Wintering,' we have failed to discover the passage referring to the 'six frames' in which he advises a strong stock to winter upon. In that work he says the size of the hive is to be reduced by division-boards placed on either side, and the combs which are not covered by bees are to be removed. 'The middle combs are generally used for breeding, and the honey is stored in the side combs, and as bees cluster near the middle combs, the side combs if filled half way should be inserted in the middle, so that the bees should cluster near the combs.'—(See p. 119.)

T. P. Clarke.—*Close of Season.*—The honey harvest is over, and your bees will not work in the sections because they have nothing to put into them. We advise you at once to extract the outside combs, and to close up the six or seven centre ones, according to the strength of the colony—with the division-boards for the winter. In case you find the central frames contain less than about 25 lbs., feed with syrup until you have attained fully that weight for winter stores. The moisture flowing from your hive is a good sign, as the colony must be a large one. It is caused by the internal heat of the hive being expelled by the ventilation of the bees.

T. B. H., *Colchester.*—*Extracting.*—The best method of taking honey from bar-frame hives is to make use of the extractor. 2. *Transferring.*—The number of frames to be given to a swarm should be proportioned to its size. 3. *Driving.*—You would find the mode suggested in Reply No. 679 (No. 1), suitable to your case.

W. P., *Wellington.*—*Unfertile Queen.*—We are not able, from the condition of the queen 'dropped into turpentine,' and forwarded to us, to state whether she was impregnated or not; but in the disturbed state of the weather at the time of the hatching of the queen, it is most probable that the drones would refuse to be on the wing.

S. L. B.—1. We are inclined to say that the bees forwarded in the Peet-cage were pure Ligurians, but it does not as a consequence follow that the queen is also pure. Dealers, in forwarding queens, are not particular as to the stock from which they draw the companions to her majesty. Ligurians are not always peaceable and mild; their character and their conduct very much depend on the manner in which they are handled. 2. Ligurian bees frequently take up their abode among black bees, and take their share of the work. No doubt blacks also visit blacks, but we cannot identify them. The other queries put forth, referring to portions of the speech of Mr. Anderson of Dalry, have been forwarded to that gentleman.

End of present Volume.—It has been suggested that it would be desirable to commence the next volume in January, 1884. The reasons urged for this course have been so cogent that we consider it to be our duty to give the suggestion our best consideration.

*** *Several Queries have arrived too late for answers in this issue, but the Querists will find the great majority of their questions answered in those we have inserted.*

ADDITIONAL BEE-TENT ENGAGEMENTS.

Berkshire Association.

Aug. 15, Thatcham. 16, Reading. 21, Earley. 23, Burghfield. 29, Caversham. Sept. 6, Shinfield. Sept. 11, Aldermaston. Sept. 12, Wokingham.

Devon and Exeter Association.

Aug. 16.—Huish (Heanton Satchville).

Aug. 18.—Elmfield House, St. David's, Exeter.

Aug. 23 & 24.—The County Show, on Northernhay, Exeter.

Special Prepaid Advertisements.

For Sales and Purchases of Bee Appliances, Honey, Books, Pamphlets, Diagrams, &c., Exchanges and Situations.

Terms: Twelve words and under, Fourpence; for every additional three words, One Penny extra; no reduction can be made for continuous insertion.

LITTLE Wonder Extractor, good as new. Will take in exchange, Stock of Bees in Skep, or what other offers. GEORGE CHILDE, Semington, Trowbridge, Wilts. A 12

FOR SALE.—10 Hives of Bees; 8 Skeps, 2 Bar-frames; 2 Houses, hold 6 each: 12*l.* the lot, or otherwise. ROBINSON, Chalks Farm, Great Waltham, Chelmsford. A 13

HONEY. What offers for about 250 lbs. White Clover Honey in Bulk? ENOCH WOODHAM, Abbotsley, St. Neots, Hunts. A 11

FOR SALE.—*The British Bee Journal*, in parts clean. Vols. 4 and 5, 5*s.* each, ditto Vols. 7, 8, 9 and 10, 4*s.* 6*d.* each. MR. S. F. CLUTTEN, Whittingham Hall, Fressingfield, Harleston. A 16

A HANDSOME Bee-house to sell for 2*l.* 5*s.*, cash, with Crown boards, &c., measuring 3½ ft. high and long, cheap and strong. Apply, W. BUNTING, Lexden Road, Colchester. A 15

TO ASSOCIATIONS.—Mr. C. N. White, Hon. Sec. Hunts B. K. A., offers his services during his school vacation from August 18th to September 21st, to any Association requiring an expert to visit its members, &c. Expenses only required. Address C. N. WHITE, Somersham, Hunts. A 17

BLACK Queen, 2*s.* Hybrid, 3*s.* ENOCH WOODHAM, Abbotsley, St. Neots, Hunts. A 10

SIX Hives of Bees for Sale cheap in Pettigrew's Hives, Apply J. HINTON, Infirmary Lodge, Wigan. A 14

Second Edition. Fifth Thousand.

BEE-KEEPERS' GUIDE BOOK. Containing Management of Bees in Modern Moveable Comb Hives, and the Use of the Extractor. By THOS. WM. COWAN, F.G.S., F.R.M.S., &c. With numerous Illustrations. Fcap. 8vo., price 1*s.* 6*d.*; or in cloth gilt, 2*s.* 6*d.* Postage 2*d.* To be had of HOULSTON & SONS, Paternoster Square, all Hive-dealers, and Secretaries to Bee-keepers' Associations. 380

COMBINATION HIVE, 20 × 14½ in., Double Front and Back, 8 Association Broad-ended Frames with Guide, 2 Improved Dummies, Quilt, Bottom Plinths, Porch, Slides, Strong Raised Bottom, Deep Weather Cover. 6*s.* each, or Six for 33*s.*

W. R. Baker, Esq. (Mem. Committee Cornwall B. K. A.), Tredorwin, Penzance, writes: 'Your hive is good work; by far the cheapest thing of the kind I have ever seen.'

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PEKIN DUCKLINGS, will make grand birds, from 5*s.* CAYUGA DRAKES, from 7*s.* 6*d.* TAME-BRED WILD, from 4*s.* 6*d.* each. PLYMOUTH ROCK COCKERELS, 7*s.* 6*d.* each. Also a few YOUNG TURKEY COCKS, and EMBDEN GOSLINGS.

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ABBOTSLEY, ST. NEOTS, HUNTS. 1219

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FOR SALE.—About TWENTY STOCKS OF BEES, guaranteed to be in good wintering condition. Every Comb new this season, and built from full sheets of Worker Foundation, all quite straight; in New Combination Hive; takes 12 Association Frames, double-walled all round, Roof covered with zinc or iron, removable floor-board, good oak legs, porch, sliding entrance, and division-boards, &c., all complete. Painted any colour. On rail, 37*s.* 6*d.* each.

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17 St. Paul's Street, Stamford. 1218

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SUPERIOR HONEY KNIVES, post free, 2*s.* 9*d.*

COMBINATION HIVE, many Prizes, price 7*s.* 6*d.*

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Nearest Station 'HORSEBRIDGE,' L. and S. W. R

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GREAT HAMPSHIRE BEE-FARM,
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Seventeenth Edition. Price One Shilling.

SEVENTY POUNDS A-YEAR:

HOW I MAKE IT BY MY BEES.

By the late J. W. PAGDEN.

Also, by the same Author, price Sixpence.

EARLY ARTIFICIAL BEE-SWARMING.

No watching required.

Apply to Mrs. J. W. PAGDEN, The Chestnuts, Alfriston, Sussex, by whom the same manufacturers of 'Economical Bee Furniture' are employed as formerly. 527

CHARLES THOS. OVERTON, THREE BRIDGES, SUSSEX, Hive manufacturer, Honey producer, and dealer in Apiarian appliances, Importer and Breeder of Ligurian, English, and other Foreign Bees.

SPECIALITIES.—The 'COWAN HIVE,' adapted for working Sections, Extracting, or Wintering, price 27*s.* 6*d.*; well painted, 30*s.* Cheap COTTAGE HIVES, from 4*s.* 6*d.* Flat-top STRAW SKEPS, with hole in the centre for Feeding and Supering, 2*s.* each, 23*s.* per dozen. All Hives fitted with the Association Standard Frame. Comb foundation, Sections, Extractors, Feeders, Smokers, Crates, Racks, and every requisite for Advanced Bee-culture.

BEES.—SWARMS of LIGURIAN, or ENGLISH BEES, for early Spring delivery. Prices: ENGLISH, 15*s.* and 20*s.* per Swarm. LIGURIANS, 7*s.* 6*d.* per lb. QUEENS, 7*s.* 6*d.* extra.

Questions on Bees and their Management answered by return of Post, 3*d.* Stamps. 'Modern Bee-keeping,' 7*d.* 'Bee-keepers' Guide,' by T. W. Cowan, Esq., 1*s.* 8*d.* post free. ILLUSTRATED CATALOGUE and PRICE LIST will shortly be ready, 2*d.* Stamps. Send 1*d.* Stamp for Price List.

Address—C. T. OVERTON, The Apiary, Three Bridges, Sussex,
Expert of the Sussex Bee-keepers' Association, Agent for the British Bee Journal.

HEAD QUARTERS

FOR THE

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HAS made special arrangements with the Breeder in Italy of his Imported Ligurian Queens to prevent In-and-in Breeding, so that his customers may now rely upon being supplied with none but the very best that can be produced in Italy. The precautions taken commenced early last year, so that all is now in perfect working order.

As the Prices for these Imported Queens will be the same as last year, his patrons will have the sole benefit of this costly arrangement, and he cannot, therefore, undertake to supply these Queens except to his old customers and orders accompanied by cash.

PRICES FOR 1883:—May, 8s. 6d. June, 8s. July, 7s. 6d. August, 7s. September, 6s. October, 5s.

CAUTION.—DON'T BE TEMPTED BY LOWER PRICES TO PURCHASE UNRELIABLE QUEENS.

Do you want Hives, Bees, Supers, Smokers, Honey Extractors, Sections, Comb Foundation, or any other Appliances? If so, be careful that you are not tempted to purchase from those who, from want of experience, cannot produce or supply goods which will give the desired results. Unsuitable materials, want of practical knowledge, and bad workmanship, have caused the loss of many stocks of Bees. Cheap Comb Foundation, made of paraffin and other adulterants, has caused much trouble and disappointment.

Deal with the Old Firm, and your Hives shall be made of Pine, your Comb Foundation of pure Bees'-wax, and everything else of the best and most perfect workmanship. *Send 2d. Stamps for Illustrated Catalogue.*

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THE SIMPLEX HIVE

Is free from all complication, yet comprises everything needed by the modern Bee-keeper. It has strong body made out of 1¼ inch stuff, and contains Ten Frames supported on metal runners. The Floor-board or Stand is separate, and has an extended alighting-board. The entrance may be enlarged or diminished by moving the Hive forwards or backwards on the stand. The Cover, which is dovetailed, has sloped roof, and is sufficiently deep for doubling, &c., while in Winter it descends over the body of the Hive, forming a double wall, with air-space between. Stained and varnished, and complete with improved Division-board and Quilt, 21*s.*

V-cut SECTIONS.—1 lb. 4*s.* per 100, 30*s.* per 1000. 2 lb. 4*s.* 6*d.* per 100, 35*s.* per 1000.

THE AMATEUR'S COLLECTION

Comprises one Simplex Hive, containing ten frames with starters of comb-foundation, division-board, and quilt, Section Rack with twenty-one 1-lb. sections, Smoker, Veil, covered Feeder, and a copy of *Modern Bee-keeping*, the whole for 32*s.* 6*d.*

Honey Bought in large or small quantities. Catalogue of Bee Furniture post free on application.

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HONEY WANTED.

EITHER COMB OR EXTRACTED.

MUST BE DELIVERED IN GOOD CONDITION.

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ALMA BUILDINGS, MACCLESFIELD. 1157

BARGAIN, OLD STOCK.—Eleven HIVES, Association Standard, new pine, 1 in. body, ¾ top, 10*s.* 6*d.* each. Two COMBINATIONS, 12*s.* 6*d.* each. Address A. LAWERENCE, Welwyn, Herts. 1200

IMPROVED BAR-FRAME HIVES, 1-inch wood. Cover and floor-board. Ten frames, British Bee-keepers' Association size, with wide ends; waxed; ¼in. space between the top bars, covered by quilt, to examine at any time without disturbing the bees; excluder zinc, to confine queen to the first six bars, and prevent worker-bees storing pollen in the last four; division-board. All well painted. Hives complete, Ten Shillings each. Free to any Railway Station. Directions for Management, 3*d.*

ISAAC HALE, Horncastle. (5)

THE

OXFORDSHIRE BEE-KEEPERS' ASSOCIATION

Will hold their FIRST ANNUAL SHOW, in connexion with the BANBURY HORTICULTURAL SOCIETY, on TUESDAY, AUGUST 28th. The following Prizes will be given :—

Class I.—BEES.

1. For the best specimen of Ligurian Bees, to be exhibited with the Queen in an Observatory Hive 15/0 10/0
2. For the best specimen of English Bees, to be exhibited with the Queen in an Observatory Hive 10/0 5/0

Class II.—HONEY.

3. For the best exhibition of Comb Honey, in 1 lb. or 2 lb. sections, the total weight to be not less than 12 lbs. Silver Medal and 15/0 10/0 5/0
4. For the best Super of Honey, not sectional Bronze Medal and 15/0 10/0 5/0
5. For the best exhibition of run or extracted Honey, in 12 2 lb. or 24 1 lb. glass jars Certificate and 10/0 5/0 2/6

Class III.—HIVES.

6. For the best Moveable Frame Hive for general purposes, complete, for Summer and Winter use ... 15/0 7/6
7. For the best Moveable Frame Hive, price not to exceed 10*s.* 6*d.* 10/0 5/0

Class IV.—DRIVING.

8. For the competitor who shall in the neatest, quickest and most complete manner drive out the bees from a straw skep, capture and exhibit the Queen 15/0 7/6

Class V.—HIVES and FURNITURE.

9. For the best and most complete collection of Hives and Bee Furniture most applicable to the present system of Bee-keeping. No two articles to be alike 20/0 10/0

Class VI.—COTTAGERS.

10. For the best Stock of Bees belonging to *bonâ-fide* Cottagers 15/0 10/0

Rules and Entry Forms, together with full particulars, on application to the Hon. Sec., the Rev. F. C. DILLON, Enstone.

DERBYSHIRE BEE-KEEPERS' ASSOCIATION.

President ... ... THE DUKE OF DEVONSHIRE.

THE SECOND EXHIBITION of HIVES, BEES, HONEY, and APPLIANCES used in MODERN BEE-CULTURE, will be held in the SHOW-GROUND of the DERBYSHIRE AGRICULTURAL SOCIETY, at DERBY, on WEDNESDAY and THURSDAY, 5th and 6th SEPTEMBER, 1883.

LAST DAY OF ENTRY, 27th AUGUST, 1883.

PRIZE SCHEDULES may be obtained from the Hon. Secretary,

Mr. H. V. EDWARDS, Mackworth, Derby. Fo. 105

HONEY IN THE COMB.

FIVE TONS WANTED FOR CASH!

WE will pay from 1*s.* to 1*s.* 3*d.* per lb. net for BRIGHT-COLOURED HONEY in STRAIGHT COMBS, according to quality, no matter whether stored in Straw Supers, Frames, or Sections. Honey to be sound and unbroken, and delivered to us at some Railway Station in London.

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Testimonial from the World's Prima Donna.
"I have much pleasure in stating that I consider your Horehound Honey the most wonderful remedy I have ever tried, possessing properties which are nothing short of marvellous for the cure of affections of the throat and chest.
(*Signed*) "MARIE RÔZE MAPLESON."
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W. M. Hoge & Co., Leconfield Road, London, N.

Of all Chemists. (23)

Sussex Bee-keepers' Association.

SECOND GREAT COUNTY SHOW OF HONEY, BEES, HIVES, and APPLIANCES, Practical Apiarian Manipulations, and Honey Fair, in connexion with the HASTINGS and ST. LEONARDS FLOWER SHOW, to be held at WARRIOR SQUARE, HASTINGS, on Wednesday, August 22nd, 1883. Entries close Aug. 15. Six Classes open to all Comers. Hon. Secretary, Rev. N. ANDREWES, Southwater Vicarage, Horsham.

THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, w.c.'

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Editorial, Notices, &c.

BEES AT PUBLIC PARKS AND MUSEUMS.

I am surprised our Parks Committee do not keep these interesting creatures in our parks to instruct and interest the thousands of our men of toil, many of whom do not know what a honey-bee is. The expense to the Parks Committee would be very trifling, as I proved by the swarm of bees I took to our Peel Park Museum on the 3rd of July, 1862. The bees were in one of my improved observatory bar-frame hives; the four sides and top being composed of glass. The hive was placed near one of the windows over the principal entrance to the Museum, a hole being cut in the bottom of the window-frame for the bees to go out and in.

The energetic curator, Mr. Plant, took charge of them; and he will confirm my statement, that during the 293 days the bees were in the Museum, they were a source of endless amusement and attraction to thousands who visited the Museum. The bees did very well in their new home, and I brought them back to Newton Heath to swarm on April 22, 1863. The consumption of food was more than the usual average, amounting to $1\frac{19}{100}$ ounce per day, rather less than $1\frac{1}{8}$ ounce per day for the 293 days they were at the Museum. This I account for by the bees being in a warm room all winter, which made them active, and caused them to consume more food.

When the Royal Agricultural Society of England visited Manchester in 1869, I exhibited some bees at work; and one stock gained in weight 9 lbs. 9 ozs. whilst at the show at Old Trafford. Bees will go four miles to collect honey; so they must have worked in the gardens round Old Trafford, much to the benefit of the owners of those gardens, as bees are the principal agents in the production of nearly all kinds of fruit and vegetables: so that it is not only honey we get from the bees, but nearly everything we grow.

The great Mr. Darwin tried a number of experiments proving the fertilisation of plants with bees. He covered over a quantity of beans with a very light net that prevented the bees getting to them, and where the bees worked on them they produced on an average four times the quantity of beans. Again, he covered over a quantity of white clover (*Trifolium repens*), and where the bees got to it they produced on an average ten times the quantity of seed. About ten years since, I was going through the grounds of the President of the British Bee-keepers' Association, the Baroness Burdett-Coutts, at Highgate. In going into the peach-house her head-gardener said, 'See what a quantity of peaches I have got set.' I turned round and said, 'You have indeed; how do you account for it?' He said, 'I have always kept bees to produce my fruit, but last autumn I bought a stock of Ligurian bees, and they being hardier than the common black English bees they got into the house when the peach-trees came into bloom, and I have more than double the number of peaches set I ever had before.'

A large Lincolnshire farmer went to the Lincolnshire Bee-keepers' Association Show at Boston in 1880, and he heard them say that bees were profitable if they were properly managed in bar-frame hives. So he thought he would try them, and got some in 1881. In September, 1882, he exhibited at the Association's bee show at Lincoln 894 lbs. of honey that he had taken from his bees last year; he had also sold some hundreds of pounds. He got several sovereigns in prizes, and I awarded him the silver cup of the Association. He had also several acres of fruit trees, and he was the only one in the district that had a large crop of fruit last year.

Bee-keeping is rapidly becoming a national industry. We have now thirty-four different County Bee-keepers' Associations, and four of the Queen's children are Presidents of four different County Associations. We have a Lancashire and Cheshire Bee-keepers' Association, with the Earl of Lathom as President, and as Patrons, the Duke of Devonshire, the Duke of Westminster, the Earl of Derby, the Earl of Bective, Lord Egerton, the Bishop of Manchester, and the Bishop of Liverpool. Why should we send thousands of pounds annually out of the country for honey and wax, when we have it running away for the want of collectors at our very doors, doing nobody any good?—WILLIAM CARR, *Newton Heath Apiary, near Manchester, August* 1883.

THE PRESS AND BEE-KEEPING.

We are pleased to note the greater interest taken by the press in the promotion of bee-keeping.

In the year 1882 the Government of India, in the Revenue and Agricultural Department, issued circulars to all local governments and administrations calling on them to gather all the information available in their districts on bee-keeping; the result of which was the collection of a number of reports, which has thrown considerable light on the subject in India. In the *Times* of the 18th ult. appeared a very able summary of these reports, which we have great pleasure in transferring to our columns. (See p. 150.)

On the 18th ult. the readers of the *Morning Post* were favoured with an editorial assailing the moral character of the honey-bee. This article contained a number of misstatements and exaggerations, and elicited several rejoinders. We select one which appeared on the 23rd:—

SIR,—I cannot let the remarks made by the writer of the article in the *Morning Post* of the 18th inst. pass without some comment upon the manner in which he condemns the honey-bee. It seems to me that he maintains because the honey-bee has some weapon with which to defend its

stores from insect pests, such as wasps, wax-moths, earwigs, &c., that it is a nuisance instead of a benefit to the country in which we live. Perhaps it may be of some interest to the writer of the article if I inform him that the profits to be obtained from the honey-bee, if managed properly, range from 50 to 80 per cent, and in some cases to 100 per cent; and if he comes into some of the rural districts he will find that the honey-bee to the agricultural labourer is a great source of livelihood. He will tell you that he has to depend upon his bees for the rent of his cottage, and for his doctor's bills, &c., and that without them he could hardly exist. In many cases when death has occurred from the sting of the honey-bee it is because its victim has in some way annoyed this useful insect so that it has been made to use its sting for self-defence. In other cases it is because the individual who has been stung or its parents have not been acquainted with any remedy for the cure of the sting. The other day in a county in the south of England there was a little child stung by a bee on the roof of its mouth; but upon the application of some common whiting mixed with water to a paste and placed on the injured part it was relieved of both swelling and pain in less than one hour. Bee-keeping is a livelihood which is making great progress in this country in spite of all opposition, and though greatly opposed by some it will still continue to increase. A BEE-KEEPER.

In the *Daily News* of the 20th ult. appeared the following paragraph:—

A HONEY HARVEST.—Mr. Firth, M.P., who is the largest bee-master in London, has just gathered in his honey harvest. The yield is equal to the average, amounting to about 33 pounds of pure honey available for use, and nearly an equal quantity being left in the hives as winter stores. Mr. Firth is the possessor of between 80,000 and 100,000 bees.

Though the apiary of the largest London bee-master is not very extensive, as we presume that the 80,000 or 100,000 bees cannot represent above four stocks, yet we are rejoiced to think that so pleasant a pastime as bee-keeping can be enjoyed in the midst of the Great City, and that its results have been such as are deserving of being chronicled in the daily press.

The following account of the visit of a lady to the late Show at Knightsbridge, which has appeared in the *Governess*, will be found interesting to ladies:—

'I visited the Bee-keeping Exhibition at Knightsbridge early in this month, and found it one of the most interesting of the season's exhibitions. With the many improved hives, which allow of the removal of the honey from the top without the bees being disturbed, I should think that bee-keeping would be found an interesting as well as a profitable occupation for ladies residing in the country, especially for those whose income is small. There is nothing to do in bee-keeping that is at all heavy work, and anything connected with living creatures is always interesting.

'It occurred to me how bees might be made to lighten and diversify some of the long and heavy days of that most unhappy class, women who are in chronic ill-health. Confined to a couch or a reclining chair, often in actual bodily pain, cut off from active participation in society, wearied of continual reading, and of thought which can never be translated into real life—the existence of hundreds of such invalids is one long martyrdom. I fancied how pleased and diverted such a sufferer might be by having in the window of her sitting-room a glass "observatory-hive," in which she could, whenever she fancied, watch the active labours of the energetic little creatures. A very small opening cut in the window-frame would let the bees pass into and out of the hive, placed close up to it, without any chance of their getting loose in the room.

'I am sure one might be amused for hours by watching the obsequious behaviour of the court to their queen. They stand around her all turning their heads to her, as scrupulously as we keep our faces to the throne in the presence at a drawing room; and when she moves how they scurry out of her way!'

BRAVE CONDUCT OF A BEE-KEEPER.

Though not strictly within our province to take cognisance of the sad calamity which recently destroyed the private lunatic asylum at Southall, we feel we cannot refrain from adding our tribute of admiration of the bravery displayed on the occasion by Mr. James A. Abbott, the eldest son of the former proprietor and editor of this *Journal*. Having been favoured by a perusal of the Personal Statement of Mr. J. Abbott, we find from it that he says, 'I noticed at a lower window Mrs. Price, an attendant, crying for help to get some ladies out of the rooms, and Webber holding a short broken ladder beneath. Believing their case to be more urgent than any others, I took the ladder from Webber's hands, and, placing it on the ground, mounted to the window, dodging under the sash, which hung loose in front of it. Clinging to the sill with my right hand, with the assistance of Mrs. Price I managed to pull a refractory inmate through the window, and let her slide through my arms till she was held by someone below. I then got through the room, and put another patient, or perhaps two, through the window, and lowered her till she was held below. Mrs. Price then said, "There is another in here," and following her into another room, I found a lady sitting on the side of a bed. This patient was particularly anxious not to be moved, crying, "Oh, don't take me!" and trying to get away. I carried her to the ladder, and, after lowering her, was about to help Mrs. Price, who, however, said she could get down without assistance. . . . I then noticed that the lowest corner window was not in flames, and, taking up a piece of brick, jumped into the area to see if anyone was inside. I then noticed a man lying at the end of the area nearest to the front door beneath the blazing windows, and running along to him I dragged him to the other end of the area, where there was no fire, shouting for help. I could not lift him out of the area as he was a heavy man and I was nearly "winded." I was soon joined by Mr. W. Fear, and soon after by some one else, and we lifted him out and carried him a short distance. We had hardly removed him before the spot he had lain on was covered with burning wood from the top windows.'

With all our heart we beg to congratulate Mr. J. Abbott at being the happy instrument of rescuing so many of the inmates from a sad fate, and trust that he may ever retain in his breast that glow of feeling which arises from saving the life of a fellow-creature. We should state that much useful assistance was rendered by the other sons of Mr. Abbott on the occasion.

USEFUL HINTS.

THE SEASON.—'Like bees, like masters.' It seems as if all of us had imagined winter was upon us; even the 'Echoes' have had the same plaintive wail, but ten days' sunshine has stimulated us all, as well as the farmers, into activity. Some of our queens, who by watchful feeding had been kept breeding through the late dull spell, have started again vigorously with the bright weather; and all, except a couple of skeps which have made a good store for a rainy day, are now, like some of their masters in the afternoon of life, 'living on their means,' are hard at work bringing in a good supply of dark honey.

DRIVEN BEES.—We hope our readers have taken the advice given in our last, and have combs built out in readiness, and are prepared to rescue as many as possible. Do not be too sparing in numbers, as they are subject to great mortality about two or three months hence. If you have not sufficient bar-frame hives by you, put them into skeps, rather than refuse them. Feed them plentifully, they will do well to transfer in early spring, or left alone will swarm early; that is, if you put big lots in the *skeps* now, and feed liberally.

Extracting and Feeding.—If you have had a bad harvest of honey, and are anxious to have a little and intend extracting, do so at once, and feed liberally. The season is rather treacherous; so you had better not delay a day longer, so as to get your bees ready for winter quarters as early as possible.

Earwigs.—Like some of our readers, we are troubled with these pests; although, not to any extent. Our remedy is this, in spring and autumn we change all our hives. Being all standard size, this is an easy matter; we take a clean hive and lift the combs and bees out of one into it, wash the dirty hive thoroughly inside and out, and when dry use it for No. 2, and so on until all have a clean sweet hive. It requires an extra hive and a few hours' labour, but we are amply compensated if only in external appearances.

Conservation of Honey.—Most producers are rushing their honey into the market. We need not say, if kept a few months, you will have an opportunity to command a better price, especially for really good samples.

Preparations for Winter.—Procure cork-dust from people that sell foreign grapes in your neighbourhood; engage some fair fingers to make cushions the size of your dummies, like miniature mattresses, with a border about 1½ in. wide is preferable; fill them with cork-dust, and with a long darning needle sew them through and through: this has the effect of keeping them in shape. We have used them for three winters, and find them most excellent draught-excluders, and easy of removal in mid-winter, should an examination be desired on a bright day. Also, some others to fit on top of the frames, on the quilt, may be made; they have the advantage of being porous, and at the same time excellent non-conductors.

Heather.—We may almost envy our fortunate friends that have in their vicinity heather their prospect of a second harvest. We hope to hear good reports from these districts.

Weak Stocks.—These may be united easily if placed side by side by degrees, and fed for a few days on scented syrup; you may then put frames from both hives into one without sprinkling the bees and combs with scented syrup, destroying one queen if possible.

Wasps are intolerable pests; we have captured some thousands in bottles containing a little beer hung on the fruit trees, and are pleased to find not half-a-dozen bees amongst them: but we do not infer that our friends have joined the Blue Ribbon Army.

Young Queens.—The chances of successful introduction grow daily less; you should do everything of this kind as soon as possible.

After the late inclement weather we can only hope for a bright autumn.

Perforated Zinc.—It will be found very convenient to have a piece of perforated zinc always at hand in the apiary. It is easily broken into strips of any size, and is very useful to cover over any opening between supers and frame during manipulations, or to slip under the feeder when it has to be removed.

ASSOCIATIONS.

THE RECENT EXAMINATION OF CANDIDATES AT KNIGHTSBRIDGE.

The Examiners' Report has just come to hand, and we have reasons to believe that the following awards have been made:—First class certificate: Rev. W. E. Burkitt. Second class: C. N. White; H. Cobb. Third class: J. R. W. Hole; H. E. Roberts; J. Davies; A. W. Rollins.

BERKSHIRE BEE-KEEPERS' ASSOCIATION: BURGHFIELD.

A very successful field day in connexion with this Society was held on Thursday, Aug. 23rd, in the charming grounds at Highwood of W. J. Bryant, Esq., M.D., which were kindly thrown open by him on the occasion of the local flower show. The Berks bee-tent was on the ground, and at intervals bee-driving, &c., was performed by the Society's expert, Mr. A. D. Woodley of Reading; and lecturettes given by the Rev. V. H. Moyle of Burghfield, on 'Bees and Bee Culture;' 'Bee Associations as means of developing one of our Home resources;' 'Bee Work;' 'Skeps and Bar-frame Hives;' 'Cottage Bee-keeping as it is and as it might be.'

There was also a honey fair, and some most excellent honey (not for competition) was shown by the High Sheriff of the County, Major Thoyts of Sulhampstead House, and also by Mr. Thomas J. Dewe of Burghfield. The first prize for honey shown for competition was adjudged to Mr. Chamberlain of Sulhampstead. Neither of these could have shown such honey two years ago; but progress in bee-culture is being aimed at earnestly in this part, and the executive of the society are taking vigorous action for that purpose.

Lectures have been given, and the bee-tent taken to several places in the county recently, Abingdon, Cold Ash, Reading, Earley, as well as Burghfield, and there is a good list of engagements still.

DERBYSHIRE BEE-KEEPERS' ASSOCIATION.

The East Derbyshire Agricultural Society held their annual meeting at Chesterfield on Wednesday, August 1. In connexion with the Derbyshire Bee-keepers' Association an exhibition of hives, honey, and appliances used in modern bee-keeping, was held in the same tent as that in which the dairy produce was shown, and formed a very interesting and attractive feature of the show. The following prizes were awarded:—Stock of bees, any race,—1 and 2, W. Hadby, Haslond. Exhibition of super honey (whether sectional or otherwise), the produce of one apiary during 1883, 1st prize withheld; 2, Mr. Naylor Heath. Twelve sections; 1, Mr. Glossop, Ambergate; 2, Mr. J. T. Windle, Chesterfield. For the best run honey, in glass jars: 1, and the British Bee-keepers' Association certificate, Mr. J. T. Windle; 2, and the British Bee-keepers' Association's certificate, Mr. Handby. Frame-hive with arrangements for summer and winter use, price not to exceed 10*s.* 6*d.*, 1, Mr. Handby, 2, withheld. Collection of hives and bee-furniture most applicable to modern bee-keeping, no two articles to be alike, 1, Mr. Handby.

LEICESTERSHIRE BEE-KEEPERS' ASSOCIATION.

This Association held its second show at Lutterworth on the 21st August in connexion with the Horticultural Society. The exhibits were larger, better, and more numerous than on any previous occasion.

Mr. W. S. Pridmore undertook the office of expert, but was totally unable to commence operations until nearly five o'clock on account of an enormous influx of bees from neighbouring apiaries. This unfortunate state of things was brought about by some uncovered exhibits sent in for the local prizes offered by D. Bromilow, Esq.

As soon as the judging was done the supers were covered down, tied, and finally removed from the tent, when the bees turned their attention to the hives brought for manipulation, and so many bees still infested the tent that the public were afraid to enter. Eventually two stocks were driven, and the bees transferred to bar-frame hives, which were drawn for as usual.

The Rev. M. Lewis acted as judge. The following is the prize list:—

Class 1. For the best collection of hives and bee furniture, most applicable to modern bee-keeping, W. S. Pridmore, 1; C. Foxon, 2. Class 2. For the best frame hive, price not to exceed 10*s.* 6*d.*, C. Foxon, 1; W. P. Meadows, 2. Class 3. For the best observatory hive with bees, C. Foxon, 1. Class 4. For the largest and best exhibit of super honey, the produce of one apiary during 1883, W. S. Pridmore, 1; C. Foxon, 2. Class 5. For the largest and best exhibit of run, or extracted honey in glass jars, W. S. Pridmore, 1; W. Daniel, 2. Class 6. For the best honey in comb, W. S. Pridmore, 1; W. Smalley, 2. Class 7. For the best run or extracted honey in glass jars, Rev. T. W. Goddard, 1; Mrs. E. Chaplin, 2. Class 8. Special Prize for cottagers, given by T. Brooks, Esq. of Barkby Hall, for the best supers taken from skep hives, S. Smith, 1; J. Drake, 2; J. Kirby, 3. Class 9. Special Prize by G. W. Smith, Esq. of Kegworth House, for the best flat-topped straw skep, with arrangements for supering and feeding, C. Foxon, 1; W. P. Meadows, 2. Mr. D. Bromilow's Prizes, Rev. T. W. Goddard, 1; Mrs. Randall, 2; F. Daniels, 3.

SURREY BEE-KEEPERS' ASSOCIATION.

The Croydon district annual show of bees, honey, &c., was held on Wednesday, 27th June (in connexion with the Horticultural Society's Show), on the grounds of J. Spencer Balfour, Esq., M.P. (Mayor of Croydon). The show was considerably above the average, and the large tent, kindly lent by the Secretary of the Horticultural Society, was thronged with visitors, who appeared to come not only to see but to hear. Captain Campbell and R. J. Hinton found ceaseless and pleasant occupation from one o'clock until seven p.m. in answering questions, explaining models, and generally expatiating upon the wonders, delights, and profits of bee-keeping. The visitors seemed to be of a decidedly intellectual type, which made a pleasure of what would otherwise have been a somewhat arduous task.

The chief awards were:—For best stock of bees in Observatory hive: 1st, Mr. Coppin, Addington; 2nd, Mr. Hollands. For best show of honey: 1st, Mr. Coppin; 2nd, Mr. Seabrook, Sutton. Best show of honey for cottagers: 1st, Mr. Wood, Croydon.

NORFOLK BEE-KEEPERS' ASSOCIATION.

Signs of Progress.

A remarkable illustration of the rapid progress which bee-culture is making in some parts of England occurred at the Show of the Great Yarmouth Horticultural Society, held on August 15th and 16th, and is, I think, well worth recording in your columns. The energetic Secretary, Mr. S. Barge, found time to manage not only a grand display of flowers and fruit, but also to arrange for a show of honey and a bee tent for lectures and manipulation. The exhibition of honey, judged by the Rev. E. Bartrum and the Rev. J. L. Sissons, was simply splendid, being remarkable both for quality and quantity.

Printed notices were issued that a special lecture would be given at an appointed hour by Mr. Bartrum on the Wednesday, and Mr. Sissons on the Thursday. Although sixpence was charged for admission on the former day, the attendance was excellent. Mr. Edmonds, the expert of the Norfolk Association, was also in the tent to manipulate in the usual manner. After Mr. Bartrum had spoken for about half-an-hour, he urged those present to join the County Association, so as to be able, if they desired, to avail themselves of the expert's aid. Almost every county in England, he said, had its Association, and every Association had its expert. Here Mr. Edmonds intervened. The Norfolk Association, he might say, had two, and sometimes three, experts at work; and recently, in a tour through his district, he had occasion to examine 137 hives in two days. No wonder that Norfolk requires two or three experts, and no wonder that the display of honey delighted the eyes both of the judges and the public.—East Coast.

SUSSEX ASSOCIATION.

The Annual Exhibition of the above Association was held in connexion with the Hastings and St. Leonards Horticultural Show at Hastings, on Wednesday, August 22nd, and from every point of view must be regarded as a complete success.

The classes were well filled, and the quantity of the exhibits were all that could be desired. The cottagers' classes were all that could be desired. The cottagers' Annual Show, and the Committee of the Sussex Association have much reason to congratulate themselves upon the work their Society had been able to accomplish in so short a time.

The Rev. N. Audrewes, the Hon. Sec., was most assiduous in his exertions to promote the success of the Show by giving lectures in the bee-tent, and general information upon bees and bee-keeping. Mr. Stuart, hon. sec. of the Horticultural Society, Mr. M. Freeman (a most intelligent cottage bee-keeper), Mr. Hammond, and others also lent valuable assistance; the general arrangements were under the superintendence of Mr. J. Huckle, the Assistant Secretary of the British Bee-keepers' Association; Mr. J. M. Hooker, Mr. Garratt, Mr. Upjohn, and the Rev. N. Andrewes, ably officiated as Judges, and the following is a list of their awards:—

For the best stock of Ligurian or other foreign bees: 1st, S. J. Baldwin; 2nd, C. T. Overton. For the best stock of English bees: 1st, C. T. Overton; 2nd, S. J. Baldwin. For the best collection of bee-keeping appliances: 1st, S. J. Baldwin; 2nd, C. T. Overton; 3rd, J. Taylor. For the best hive on the moveable-comb principle: 1st, Abbott, Bros.; 2nd, S. J. Baldwin; 3rd, J. Taylor. For the best hive, price not to exceed 15*s.*: 1st, W. F. Martin; 2nd, Abbott, Bros.; 3rd, J. Taylor. For the best hive for cottagers, price not to exceed 10*s.*: 1st, S. J. Baldwin; 2nd, G. Stothard; 3rd, Abbott, Bros. For the best 12 2-lb. sections of comb-honey: 1st, J. M. Hooker; 2nd, J. Garratt. For the best 12 1-lb. sections of comb-honey: 1st, J. Garratt; 2nd, R. Edwards; 3rd, J. M. Hooker. For the best 24 jars of run or extracted honey: 1st, J. Garratt; 2nd, C. T. Overton; 3rd, R. Edwards.

Cottagers' Classes.—For the best exhibit of honey in the comb in any form: 1st, G. Dossett; 2nd, T. Marsh; 3rd, M. Freeman. For the best exhibit of run or extracted honey in glass jars: 1st, R. Edwards; 2nd, H. Spice; 3rd, M. Freeman. For the best exhibit of comb-honey in sections: 1st, R. Edwards; 2nd, M. Freeman; 3rd, A. West.

BEE-KEEPING AT HAWARDEN.

The Tenth Annual Show of the Hawarden Horticultural Society was held in the grounds of Hawarden Castle, the home of our illustrious Prime Minister, in which he, as well as his family, takes great interest. It was made the fitting occasion of illustrating practical bee-keeping. The British Bee-keepers' Association sent an expert and a tent, which was a very great attraction, and caused great wonderment amongst many to whom manipulation of bees was quite a new thing. The weather had caused great anxiety for some days, but on the 16th it shone out like real summer, and consequently great numbers came to the Show. The Hon. Sec. of the Show, Mr. G. Spencer, rendered all the assistance possible with very great courtesy. The bee tent was well advertised in the neighbourhood and about the grounds

W. H. Gladstone, Esq., M.P., eldest son of the Premier, made a very happy allusion at the distribution of prizes, which pleasant duty Mrs. Gladstone went down especially from town to perform, to his visit to the bee tent in the afternoon, and hoped all would avail themselves of the opportunity to profit by the instruction given in humane bee-keeping.

There were three supers sent for competition, none of which were perfectly sealed, and some slabs of comb that gave strong suspicions of the sulphur pit. We hope after the visit of the tent it will be made a rule that honey must be taken without destroying the bees. The prize hive for skeps and bees for manipulation brought four stocks, three of which were most excellent, both for weight and number of bees, in fact they were such a close tie that each should have received a prize.

If the competition shown in the flowers, fruit, and vegetables, may be taken as an indication of what our friends can do in North Wales, we can only hope they will adopt bee-keeping in the same spirit and with similar results. As usual at such shows, the clergy mustered in good force, and showed great interest in the bees. An Observatory hive stocked with bees, a travelling bar-frame hive also stocked with bees and combs, an extractor, smoker, feeder, queen-cage, super for straw-skeps as well as bar-frame hive with super complete, added much to the interest of the tent. A social conversation, illustrated with a set of diagrams, on 'Bees and their Work,' given at the Institute in the village at 8.30 p.m., to a small but interested audience, added to the interest of the Show during the day, and found expression in a wish to found a 'bee club' for the village of Hawarden; but we hope, as the result of this visit, to see an Association formed that shall embrace the whole of Flintshire.

The whole company seemed to have spent a most enjoyable day. It certainly was one of the most pleasant shows ever visited by an—AMATEUR EXPERT.

CALEDONIAN APIARIAN SOCIETY.

The tenth Annual Show of this Association was held on the 24th, 25th, 26th, and 27th July, at Inverness, in connexion with the Highland and Agricultural Society. The Society may now be congratulated in having made the tour of Scotland, having visited in ten years all the principal towns, and thus shown to thousands the whole secret of the management of bees. Mr. R. J. Bennett, the hon. secretary, has long held the opinion that honey is one of the commodities this country has no need to import. Only encourage our cottagers to study bee-farming, and pay as much attention to their bees and the collection of honey as they would to anything else that is likely to yield a fair return of the capital expended, and they would soon be in a position to export the famed heather honey of Scotland.

There is no place the Society has held its show that it has created such interest and inquiry by the very class it is intended for as at Inverness. Mr. J. Johnstone of Stirling, and Mr. J. Anderson of Dalry, kindly remained over the four days of the show, driving, transferring, and showing to eager audiences practical illustrations of the command which modern science has given to apiarians over the bees. The distance from Glasgow (the head centre of the Society) to Inverness prevented many of the members from attending; but too much praise cannot be awarded to Messrs. Findlay, Cameron, Sands, Young, Anderson, Johnstone, and McIntosh, for the great interest they took in the meeting, and which brought the show like all its predecessors to a successful issue. The principal prize-takers were A. Cameron, Blair Athole; W. W. Young, Perth; J. Johnstone, Stirling; and D. McIntosh, Liff, Dundee. The Judges were Rev. A. R. Findlay, Killiecrankie, and J. Anderson, Dalry.

Reviews.

BRITISH BEE-KEEPERS' GUIDE-BOOK. By Thomas W. Cowan, F.G.S., &c. Third edition. Sixth thousand. London: Houlston & Sons. (Paper covers, 1*s.* 6*d.*; cloth, 2*s.*)—The success of this work has been very remarkable. In the course of two years five thousand copies of it have been sold. This, the third edition, has been considerably enlarged and improved. Several new features have been added, and in all essential practical details its information has been brought up to the present time. New chapters on 'The Prevention of Swarming,' 'Ripening Honey,' 'On Syrian and Carniolan Bees,' &c., have been given; and the work has many additional illustrations. The chief recommendation of this work is that it is thoroughly reliable, being the result of many years' experience by one of the most advanced and practical bee-keepers of the present day. For success in bee-keeping we can point to no surer guide; while Mr. Cowan's position as Chairman of the British Bee-keepers' Association is a sufficient guarantee that his sole object in the publication of this guide is the promotion of a pursuit which, while interesting and instructive, he believes may also, with a small amount of attention and tact, prove highly remunerative.

MODERN BEE-KEEPING: a Handbook for Cottagers. Fourth edition. Twenty-fourth Thousand. Longmans. (Price, 6*d.*)—This little work, containing the condensed experience of the Committee of the British Bee-keepers' Association, has well fulfilled the purpose for which it was originally issued. A handbook was required for the use of cottagers, which, while not too expensive, should be sufficiently extensive to convey to them a sound and complete knowledge of the art of bee-keeping. The book has proved a great success. In a few years it has attained a circulation higher than any work of a similar kind has ever reached in the United Kingdom. Several editions of it have been rapidly exhausted; and this edition, having been considerably enlarged and brought up in information to the present date, will doubtless meet with the same favourable reception as its predecessors. Its intrinsic worth, the soundness of its information, and the simplicity of its instruction, combined with its cheapness, enable us to recommend it to all intending bee-keepers.

BRITISH BEE-KEEPERS' ASSOCIATION'S MODERN BEE-KEEPING SERIES. No. I., Skeps. (Price, 1*d.*)—The straw skep, owing to its cheapness, having established a firm hold on the mind of the cottager, the B. B. K. A. have been requested to issue separately a pamphlet on its management. The Association, while steadfastly labouring for the introduction of the moveable-comb hive amongst all classes of bee-keepers, have considered it their duty to accept the charge thus devolved upon them, and to teach the cottager the best form of the skep, and how he may at the least cost secure from it the best results. The pamphlet, though small, contains a very complete course of skep-culture; and by attention to its teachings the lover of the skep will be able to obtain more profitable results than hitherto.

THE NEW ZEALAND AND AUSTRALIAN BEE JOURNAL. No. I. Auckland, N. Z., July, 1883.—The publication of this periodical, devoted exclusively to advanced bee-culture, is indicative of the rapid progress of bee-keeping in this distant part of the earth, and proves conclusively that New Zealand will eventually be a honey-producing and honey-exporting country. Scientific bee-culture has only been introduced into New Zealand about four years, and it has progressed so rapidly and so successfully that the need of a representative journal has made itself felt. We have only good words to say of the contents of this number, and to express bright hopes for its future course. The editor is Mr. I. Hopkins, compiler of

the *Illustrated New Zealand Bee Manual*, and manager of the Matamata apiary. The number consists of twelve imperial 8vo pages and a printed wrapper. We trust that a long and useful career lies before it.

Foreign.

FRANCE.

From the list just published by the *Apiculteur*, it appears that the prizes awarded at the recent Apicultural Exhibition held in Paris in conjunction with that of Entomology were fifty-eight in number—viz., two abeilles d'honneur (bees of honour); one rappel d'abeilles d'honneur; five diplomas of honour; one rappel of honour; one gold medal, offered by the Ministry of Agriculture; one gold medal, offered by the Society of French Agriculturists; thirteen first class medals; one rappel of ditto; two medailles de vermeille; three silver medals; twelve second class silver medals; two rappels of silver ditto; thirteen bronze medals; and one very honourable mention. Among the receivers of the awards 12 were Parisians, mostly for their exhibits of honey and honey confectionery, 3 Germans, 1 Austrian, 1 Italian, 1 Belgian, and 1 Silesian.

BEE-KEEPING IN INDIA.

Although India contains swarms of bees of different kinds, scattered over all parts of the country, it is a strange and almost unaccountable fact that no attempt has ever been made to domesticate them, except in Cashmere and a few of the Hill States. Whether from the force of habit, or from some forgotten tradition of superstition, or, possibly, from mere ignorance, the inhabitants of the plains have never, so far as the record of their social history runs, made the faintest attempt to keep bees in that domestic state which seems best suited not merely to preserve all their honey for man, but to make it most palatable. They have preferred to take such wax and honey as they might require or be able to procure from the wild bee, a process advantageous on grounds neither of economy nor of flavour, for the wild honey of India is, as Sir Lepel Griffin has tersely expressed it, 'impure and unpalatable.' This promising subject first engaged the attention of Mr. John Douglas, of the Indian Telegraph Department, some few years ago, and inquiries were set on foot in all parts of India to ascertain what were the exact facts in connexion with the popular treatment of bees. The results of these investigations have been recorded in a volume just published by the Indian Government for the information of the Secretary of State, and, although the Indian authorities have come to a very common decision with them—viz. to do nothing towards domesticating the bee, they deserve some credit for enabling very interesting information to be collected which throws much light on the subject, and which may encourage private individuals, both European and native, to do that which the State declines to undertake. The volume containing this information has been placed at our disposal, and we cannot do better than epitomise the interesting facts it contains on the subject of the wild bees of India, and as to how they might be domesticated.

In the first place, it may be interesting to state that a careful search of the invaluable archives of the India Office by Sir George Birdwood failed to discover any report on the subject, except, of course, that given by Mr. Moorcroft in his book of travels fifty years ago. Mr. Douglas was, therefore, undertaking an inquiry on an absolutely fresh subject, although it was no secret that the natives of the plains used only wild honey. No better reason for this is given throughout the numerous reports contained in this volume than that suggested at he time by Sir George Birdwood, viz. that 'cane-sugar is so abundant.' Some correspondence, which has unfortunately been lost, was held twenty years ago between Sir George Birdwood and some distinguished scientific men in England; and the opinion they formed was that 'the Indian honey-bee would be most useful for domestication in England.' There are in India five principal kinds of bees, but these might be subdivided into almost innumerable classes. They vary among themselves, not only in appearance and personal ferocity, but also in their capacity of honey-producers. One point seems clear, on the unanimous testimony of those who have investigated the matter, and that is, that the power of producing honey seems to increase in proportion with the venom of the sting. In Coorg, where the natives have made some attempt to domesticate the bee, some of the wild bees build their combs in trees, and as many as one hundred combs are occasionally found on a single tree. An average of twelve seers, or 8 lbs. of honey, is obtained from each comb in this district, and the bees are driven out by smoking torches being applied to their nests. Very few bees, we are told, are killed by this process; but another informant states that 'millions of bees perish every year simply for want of human knowledge, and it can well be believed.' The characteristic feature of the Coorg honey is that it is very sweet, and has a heating quality. We have said that some attempt has been made in this part of India to domesticate the bee, but it is of the most primitive kind. Rudely constructed hives are placed along the roadside, or in what are thought to be likely places in the woods; and sometimes it happens that they are thus induced to take up their home in them. The bees are frequently induced to return to these hives by half the comb being left for their consumption; but this is the extreme extent to which the art of bee-culture has been carried in any part of the peninsula.

Outside Coorg, the only attempt to keep bees has been on the part of European residents; and the description given by a gentleman long resident in the Neilgherries not only shows how easily the domestication of the wild bee might be accomplished, but also the indisputable superiority of its honey. Another gentleman writes from the Wynaad, and gives a description of their habits, which shows the Indian bees are practically identical with their European cousins. The writer of this report, Mr. Morgan, Deputy Conservator of Forests in the Wynaad, came to the conclusion that only one kind of bee, the *Apis Indica*, is capable of domestication, and that 'only in hilly regions, not on the plains.' If that is so, the explanation of the non-domestication of the bee is obvious; and it will be noted that the attempts which have been made by English officials and residents to keep it have all been in the hills or in elevated places. The largest kind of bee presents an additional difficulty to being domesticated in its extraordinary ferocity. It is commonly reported to go out of its way to attack animals and even men; and many cases are given of its having stung horses and human beings so venomously that they have died. A curious fact in connexion with them is that, during the swarming season, which in Southern India occurs about May, they lose their power of stinging, and seem to be perfectly harmless. Junglemen, who studiously avoid them at all other times, will go up to them when clustered on a branch and place their hands over them, and even the fiercest bees will not resent the liberty. The following account from another Forest Conservator sums up a good deal of the current knowledge as to the habits of the wild bee, and is, moreover, generally interesting:—

'My impression is that the honey is generally fully stored in April and May—I suppose as a provision against the monsoon. Notwithstanding the precautions mentioned of using lighted torches to distract the attention of the bees, I have known the men taking the honey often badly stung. There is this peculiarity for certain—viz. that, even when

the honey is taken year after year, bees always affect the same places. So much is this the case that the jungle-men in their rules among themselves lay claim to certain trees or certain rocks. I knew of a case in Wynaad where there was a large boundary tree called the Erumavan tree, on the line dividing Wynaad from Mysore. This huge mango had a girth of some 20 ft., and the Wynaad Curumbers exercised the right of collecting the honey on all the branches overhanging the Wynaad, and the Mysore Curumbers on the branches overhanging the Mysore side of the line. Another well-known place for bees in Wynaad was a large stone bridge, under the arches of which a very great number of combs were built every year, the produce of which I took regularly for Government. But the place *par excellence* for bees is an overhanging ledge of rocks, and when a number of conveniently precipitous ledges are found, there is no limit to the combs made. An excellent example of this is to be seen on the hills near Sultan's Battery in Wynaad. In the Anaimalais and parts of Kollegal I know of many such bee-frequented ledges; in fact, one of the great dangers of ibex shooting is sometimes experienced from this cause. I know nothing about the resemblance to European bees. The only effect that I know of climate on bees is that their working season varies to a certain extent with the monsoon.'

Although the inhabitants of India obtain from the wild bees sufficient wax and honey for their immediate requirements, they do so in a desultory sort of way, and at the cost of enormous economic waste. The honey is seldom obtained without inflicting very considerable loss of life on the bees, and in some places only by their extermination, as in Rajpootana, where the people of Ulwar cut the hives in two and drop the upper half into a sack, wherein all the bees are smothered. Regarded from a national point of view, the acquisition of a single comb is dearly purchased at the price of a swarm of bees. The principal difficulty in the way of cultivating bees to a large extent in the plains arises from the absence of flowers, and no doubt that is true to a very great extent; but when it is remembered that flowers are not absolutely necessary to the production of pure and sweet honey, that extracted from the bees of Mount Hymettus being probably as sweet as any to be obtained, although the bees have there only heather to feed upon, this objection ought to lose a great deal of the force laid upon it by Anglo-Indian officials. There is one kind of bee which feeds on the mustard plant, and the honey is credibly reported to be piquant as well as excellent. However, the presence of flowers is undoubtedly essential to the production of good honey; and is, perhaps, the main reason why bees are domesticated in the States lying on the slopes of the Himalayas. In Cashmere they have been more successfully cultivated than elsewhere, so that Cashmere honey has had in northern India quite as great a reputation as the shawls of that beautiful valley have held in Europe. Sir George Birdwood describes on the authority of Moorcroft the method of bee-culture in that State as follows:—

'Their domestication in Cashmere is so general that in some parts of the country a provision is made for hiving them. In every house as it is being built spaces are left empty in the walls, about 14 ins. in diameter, and 2 ft., the average thickness of the walls, in length, which are carefully lined with a mixture of mortar, clay, and chopped straw, and closed at the inner end with a flat tile. There are ten or a dozen of these hives built into the walls of every house. The bees are hived exactly as in Europe, but the comb is gathered differently, and in a way well worth following at home. It is done by the father of the house removing the flat tile from the inner end of the hive with one hand, and at the same time blowing the smoke of a smouldering wisp of straw he holds in the other hand vigorously through the hive, on which the bees at once leave the hive, and he gathers in their store of honey. He then replaces the flat tile at the inner end of the hive, and the bees, after recovering from their stupefaction, gradually return to it. The same colony of bees thus produce honey year after year in the same hive, and generation after generation, and have probably done so from the original Aryan settlement of the Cashmere valley. In consequence of their being thus literally domiciled with the human race, the bees of Cashmere are milder in their manners than those of any other country, although they have a most villainous sting when unduly provoked to use it. Their honey is as pure, clear, and sweet, Moorcroft says, "as the finest honey of Narbonne."'

The requirements or the greed of a despotic government have led to the imposition of a tax on hives in this State, with the necessary consequence that a falling off in their number is reported. The British district of Kumaon, which lies on the west of the independent kingdom of Nepaul, and which at one time formed part of that State, is also the scene of an active and intelligent industry in respect of bee-culture. But although one report states that most of the honey used in Oude is imported from Nepaul, Mr. Girdlestone, our resident in that State, stated that 'to the best of my knowledge bees are not domesticated in this country. The Nepaulese obtain sufficient honey for their wants from the wild bees of the forest.' If this be so, only wild honey is exported from Nepaul, which will account for its inferior quality; but many officials seem to think that, as the production of wild honey in many parts of India, as, for instance, in the Sunderbunds, is superabundant, there is no need to domesticate the bee, or to produce a fresh supply of even purer honey. But this is to take a very narrow and restricted view of what ought to be equally distributed, and to prove a source of great national wealth. That there is no insuperable difficulty in domesticating the wild bee, or at least most kinds of it, may be judged from the following description of the method adopted at Darjeeling. There is apparently not the least reason to doubt its general applicability to the whole of India:—

'The bees are usually started by a queen (or, as they call her, "the Rajah"), accompanied by her bees, coming voluntarily to a house, and swarming on or close to the house. She is easily recognised, owing to the loud noise which she makes. She is usually enticed into a box—a hollow trunk cut into two pieces and made into a box—which is then placed near her swarm; if necessary, a little honey is smeared on the box and round the hole, which is of course left in it. A few only of the bees are killed during the taking, which is done during the very early hours (in fact, at daybreak) of a dark night, when there is no moon. A piece of burning rag or cloth is held up under the bees, which are all hanging on to the comb; they are stupified by the smoke, and their comb is cut away with ease. Care is taken to prevent them from being too much smoked; they are only made slightly stupid. Other swarms naturally come out of the original hive, but they as often as not fly right away for miles without settling. They flourish best here at an elevation of about 5000 ft. Mustard affords good honey. Hornets are their great enemies here They enter the hives, carrying off the bees, stealing their honey, and causing the remainder of the bees very often to decamp. The bees are not nearly so large as English bees, but I am told that in the hotter elevations they sting far harder. The honey here is wonderfully clear and good.'

The information thus collected from all parts of India tends to show that the possibility of domesticating the bees of India is by no means certain. With a few kinds a sufficient success has been attained to justify the belief that their culture would prove remunerative and successful. With some of the larger and fiercer kind it is already clear that any encouraging degree of success is out of the range of possibility. Further experience and practical experiments alone can tell whether with the intermediate kinds any beneficial results are likely to accrue from their domestication. Some officials incline to the belief that the best way of promoting bee-culture among the natives is by the importation of some of the European species; but, considering the results achieved from the indigenous kinds in Coorg and the Wynaad, as well as among the Himalayan States, and, to give a

further instance, among the Waziri clan on the Derajat frontier, there seems no valid reason why the native bee should not be completely domesticated and educated so as to give its honey without loss, and in improved quality as well as increased quantity. The decision to which the Indian Government has come is to leave this question in the hands of private individuals; and, although the wish is natural that it should have taken some distinct step towards hastening the desired result, it has, perhaps, not acted unwisely in leaving in the hands of private individuals the solution of a matter of real importance to the material welfare of India. Bee-culture on a large scale should be possible throughout the whole extent of India, and not only would it teach the people some of those habits of thrift in which they are so remarkably deficient, but it would add to their extremely small stock of available wealth and provision. For these reasons, it must be hoped that some steps will be taken to encourage the natives in domesticating the wild bees, or such of them as can be domesticated, and the European residents cannot do a better piece of work than by taking up this very practical little question. If the Indian authorities will not take the lead in the matter, they can, at least, place many facilities in the way of those more energetic and public-spirited than themselves; and if they ask what they could do, it may be responded that they could send a certain number of bee-hives to India for distribution, and publish in simple and easily procurable form the valuable information contained in this instructive collection of local reports. —*The Times, August* 18.

MR. ANDERSON'S VISIT TO MR. D. A. JONES' APIARY, ONTARIO, CANADA.

[The following communication was received from Mr. Anderson in reply to inquiries respecting certain portions of his speech recently delivered at Dalry (see p. 110).]

I was at our Inverness Show, and did not see your note until yesterday; I shall be most happy to answer your questions as far as my ability will allow. First, I do not mean that Mr. D. A. Jones does not keep any of our native black bees; what I meant to say is, I saw every kind of bee that he keeps but the black bee preserved in spirits of wine for the purpose of showing people the different races of bees. It was a most unfortunate time when I visited him. It was in the very end of March. The day was fine, but the snow was still lying on the ground. Mr. Jones drove me out to one of his bee-farms and one of his large winter houses, where I think there were nearly 300 hives. He opened one of his double doors for the purpose of showing me his method of wintering bees; but as the sun was very strong at the time we had to retreat, for there was a fine Holy Land hive just in front of the door, and it began to pour out. We got away without the loss of a great number; but they were a most beautiful bee, large, and healthy, and light-coloured. We went up the loft, which was covered with a foot of sawdust, for the purpose of seeing the condition of the thermometer. We found it several degrees too high, so we rode over to a farmhouse, and Mr. Jones gave instructions to open the doors at dark, and shut them at ten o'clock, or when the thermometer was reduced to 43 or 45 degrees. After that we drove home for dinner, and then I was shown over his establishment, where his various bee-gear is manufactured. There were two men at work doing nothing but making smokers. His office contained all the books and newspapers that were published in connexion with bee literature. After being shown all over it, I thought, with my humble experience, 'I am just like a child crying in the wilderness.' Jones is truly a great man, and without any self-conceit. He considers Root the best bee-man in America. The American bee-keepers have an excellent method of gaining acquaintance one with another, for they are very partial to meeting in Convention—they think nothing of travelling five or six hundred miles to a Convention. One matter, which does them great credit I must mention. A number of them have combined to subscribe so much a-year to keep old Langstroth in a respectable way in his old age. They say, 'He was our instructor, and we are bound in honour to see him respectable in old age.' The way the Americans get pure queens is by placing them on islands far from shore in the Georgian Bay. Their choice Italian queens are mated on Italian Island by the purest Italian drones; the Holy Land queens on Palestine Island; and his Cyprian queens on Cyprus Island. By this means they hope to be able to produce races of bees superior to any yet known. These islands are visited by a great many prominent bee-keepers.—JAMES ANDERSON, *Ryeside Cottage, Dalry, Ayrshire, August* 14*th.*

BEE-KEEPING GARDEN PARTIES.—Several efforts have been made at Ilchester recently to induce the cottagers to adopt the modern method of bee-keeping. Prizes have been given at the Flower Show for the best exhibits of super honey; a lecture has been delivered in the Town Hall; and the Vicar, the Rev. E. F. Hopkinson, has used his influence with some of his neighbours to induce them to take their honey without destroying the busy little workers who gathered and stored it. In order to show that this really could be done, it was arranged to hold some manipulations on the lawn at the Vicarage, and to invite those who were interested to come and witness them. This was done on Tuesday, August 7th. The Rev. W. E. Burkitt, Buttermere, was the expert, and a stock of bees, with their comb, brood, &c., were transferred from a straw skep to a bar-frame hive in the presence of many spectators, the honey being taken without destroying the industrious little insects. A second stock was subsequently transferred in the Mead, and the cottagers witnessed the operation with much interest.—*Western Gazette, Aug.* 10.

Correspondence.

*** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of July, 1883, amounted to 7496*l.* [From a private return sent to E. H. Bellairs, Christchurch, by the Principal of the Statistical Office, H. M Customs, E.C.]

THE LATEST THING IN HIVES.

I want to tell you the latest thing in hives. I bought a swarm of bees on the 16th from a well-known bee-keeper in our neighbourhood, which I found he had hived a fortnight before in nothing less than his *wife's paper bonnet box*, in which even our little friends had five pieces of comb four or five inches deep. I transferred them at once, and before three hours were over they were working away at some of the last 20 lbs. of the beautiful foundation comb forwarded by Messrs. Abbott.

I took a swarm on the 6th from one of the tallest oaks in the park—thanks to hints I received from Admiral Moorman, a celebrated beeman at Exmouth. They must have been there many hours, as they had three inches of comb worked out at the end of the leafy spray.

We had nothing but rain all through July and beginning of this month, and our honey yield will be small this year. The weather now is such as to rejoice the hearts of all bee kind and keepers.

The *Bee Journal* is getting more invaluable every month.—RECTOR, *Buckland Filleigh, Aug.* 25.

A WORD TO EXHIBITORS OF HIVES.

At several shows during the present year, some exhibitors, I should suppose, must have felt surprised, as well as annoyed, that no notice has been taken of their hives sent for competition, even though they may have been successful before. I do not mean that those usually successful need any hint, but certainly some whose names have appeared as winners in former years have disappeared from the list; whereas, in my opinion, it is distinctly advisable that they should still compete: I hope, therefore, you will allow me to contribute a few lines on certain points which seem worthy of attention.

First. An exhibitor who sends a rack of sections should be careful not to introduce separators or dividers, as they are sometimes called, which are either too low or too high; if too low, the separators are of very little use, as the bees build out the sections above, so that the latter 'bulge,' even if the bees do not make two sections into one; if the separators are too high, and the top of the sections is closed, no new row of sections can be placed on the top, as may sometimes be necessary. I have reason to know that some judges disqualify at once a hive with a rack containing separators continued to the top of the sections.

Second. Some exhibitors show frames which have no distance-pins, nor anything to keep them in their proper place. They have evidently read that a well-known and justly-famous bee-keeper does not use any special means to keep his frames each in its place, and therefore they regard anything of the kind as superfluous. But are they so? The bee-keeper to whom I refer has a practised hand and a correct eye; he can do without distance-pins, or shoulders, or metal ends: but the majority of men cannot. Before, then, a hive can hope to win a prize, the distance-pins, or some other method, should be applied, so as to keep each frame in its proper place, otherwise a beginner would soon be involved in trouble, and if the hive were at all on the slant—few hives, probably, are quite as level as they should be—he would often find his frames far too near each other, and would not bless the judge whose award had led him to purchase such a hive.

Thirdly. Care should be taken that the workmanship is not in any way inferior—frames badly made or badly fitted at once condemn a hive, and put it altogether 'out of the running.' No judge ought to award a prize to a hive, however cheap in price, which has a manifest defect, or which is distinctly faulty in any way. If he did so, he would be allowing a model to go before the public which they ought not to copy. Prize hives must not only be cheap, but also correct in every detail.—JUDEX.

READING-ROOM.

Referring to my paragraph in the 1st August number of the *Journal*, page 121, I would mention that the list of subscribers is not growing so fast as I could desire. At the same time I have some offers of larger subscriptions to assist in the establishment of the proposed reading-room and museum. Several persons who have expressed approval of the project have not yet sent in their names. Will all do so as soon as possible?—DUNCAN STEWART, *Knockholt, Sevenoaks, Aug.* 21.

REMOVAL OF FORTY-SEVEN BAR-FRAME HIVES 120 MILES.

In a former number of the *British Bee Journal* you were kind enough to insert a letter from me relating to the lack of facilities for moving bee-hives, &c. by rail, and stating the fact that none of the railway companies' list showed any classification in which such articles could be placed. May I now ask you to publish the following account of the removal by me (by means of the Great Eastern Railway) of forty-seven stocks of bees in bar-frame hives a distance of 120 miles?

After a good deal of correspondence with Mr. Robertson, the superintendent of the G. E. R., I obtained from that Company one of their milk-vans (measuring, inside measurement, about 21 ft. in length, and 7 ft. in height and breadth), into which I was enabled to pack all the bees and hives in a perfectly firm and immoveable manner. The van, I may say, in passing, was ventilated at both ends and both sides in a most satisfactory way, they being made very much like Venetian blinds. The Company did their utmost to enable me to get my freight in good condition to its destination, as they attached the van to fast passenger trains, by which means the journey was completed in about six hours, including stoppages, such stoppages being caused by the freight having to be conveyed over several cross lines.

The bees were enclosed in the hives by perforated zinc being nailed over the entrances, and also over the tops of the frames, the roofs of the hives being of course taken off. All honey was previously extracted to prevent the combs being broken down by their own weight; and as another precaution against such breakages, the frames were fixed perfectly rigidly in the hives by notched strips of wood nailed to the floor-boards and placed at each end of the frames.

Acting on the advice of Mr. Godfrey, of Grantham, who kindly assisted me in my undertaking in every way in his power, the perforated zinc was placed so as to allow the bees walking freely between it and the tops of the frames; [and in this way they were enabled to get more air than they would otherwise have done, and a certain amount of weight was taken off the combs.

The extracting, preparing the hives, loading them into the waggon to be taken to the station (a distance of three miles), and from the waggon into the milk-van, took quite a week of really hard work; and had I not received the valuable assistance of Mr. Robert Thorpe, of Evedon, Lincolnshire, I am persuaded that I should never have moved so large a number of bees so great a distance successfully. For when I tell you that I only lost one colony, and the entire damage to the others was the breaking down of three combs only, I think you will agree with me, that this was a large measure of success.

The loss of the colony was due to the breaking down of all the combs (six in number) in the hive, these combs being somewhat full of brood, and having a very large number of bees crowded upon them. Had I taken the precaution to insert two or three more frames of comb, the accident would never have occurred, but this stock was an artificial swarm made only the night before starting on the journey, and was consequently somewhat hurried over. Unfortunately, too, not knowing the accident which had occurred, I only attended to this hive in its order, which, as it happened, made it the last but two of the whole forty-seven, and caused it not to receive any attention until the second day after its arrival; whereas had it been seen to at once, the broken-down combs might have been tied into their frames, and the stock of bees thus saved from suffocation. Should any of the readers of your valuable *Journal* desire any further information in case of their wishing to move a number of stocks, I shall be most happy to supply them with it.

It has, I believe, been hitherto somewhat a question amongst bee-keepers, whether a large number of bees could be removed a long distance from one part of the country to another without a very large proportion being lost, my experience, I think, conclusively proves that it may be done.

Should I ever again be under the necessity of moving so many stocks, I believe (having gained some knowledge and experience from this the first, so far as I know, undertaking of the kind) I should be able to do so with far less trouble than this removal cost me and those who so kindly assisted me, with no loss whatever.—D. P. MEADOWS, 241 *King Street, Gt. Yarmouth, Aug.* 25*th*,

AN AMERICAN QUEEN.

I think it requires no apology to chronicle the safe arrival of a queen-bee from one of America's most noted bee-masters, Mr. G. M. Doolittle. On the 16th of this month (August), I received a small package which revealed its contents without opening, and you may be sure I was right glad to see signs of life through the two small air-holes. It weighed nearly 6¾ oz. Returning to the apiary with the little treasure I soon had the gratification of beholding one of America's 'Golden queens,' probably the first that has crossed the Atlantic.

On opening the cage the bees did not *rush* out, as is common to them after a long confinement, but walked slowly through the opening, one or two only of them taking wing at a time, the remainder guarding the entrance and demanding 'Who goes there?' of their comrades on alighting after their cleansing flight. The queen did not take wing, although I half expected it, and was provided with a bell-glass in the event of her doing so. The cage was as sweet and clean as when they were first put in. No spots of dysentery, and the queen and her fifteen or so attendant bees in prime condition. Two only of the bees were dead. The food was not more than half eaten, was nice and moist and kept its allotted place to perfection. I take particular notice of this, as it often besmears the bees by being too soft or gets grainy, falls into the body of the cage by being too dry. It appears to be sugar and honey. The journey occupied fifteen days and the distance travelled I cannot at present say but will ascertain. So I shout out, 'Bravo, Doolittle! bravo!'—Angus Cameron, *Blair Athole, 24th August.*

[We consider the arrival of this 'Golden queen' from its Western home no ordinary event in the annals of bee-keeping. Our American brethren are making strenuous efforts to rear queens uniting the best qualities of all known bees. If they succeed, they purpose calling the coming bee *Apis Americana*. It is within the possibilities of the time-to-come, that a traffic in queens between America and this country may arise from the event we have now chronicled. In the meantime we should consider it a favour if Mr. Cameron would report to us the result of his interesting experiment.]

CROWN-BOARDS.

Referring to Mr. Lyon's communication on page 135 last *Journal* respecting crown-boards, I would say that I have long since made up my mind on that subject, and have fitted most of my hives with crown-boards composed of very thin wood tacked on to a frame, with chaff packed between. In the centre I leave a space about 8 in. by 3 in. which receives the feeder; and thus in feeding time the syrup taken by the bees is always warm, being protected by the chaff-packed board, which retains the heat made by the bees. One thickness of ticking is used between said crown-boards and tops of frames, and with that, of course, there is no difficulty in removing it, nor fear of crushing bees. Wood looks neater and is more durable than linen material tacked across a frame. The hives have been perfectly dry during winter (the bees being crowded), and another advantage is that feeding can be carried on regardless of wind, as there is no fear of quilts being displaced. As I stop direct draught at the entrance, strong colonies in mid-winter can be regulated to a nicety by leaving the centre hole partly open for ventilation; or in other cases any odd piece of cloth can be placed over it, so that one is always *sure* of ventilation, which is not the case with the ordinary quilting, which becomes so thickly propelised as to be useless for that purpose.—S. Simmins, *Rottingdean, Brighton.*

CANDY.—VENTILATING HIVES IN WINTER.—WINTER 'SHADER.'

I have had the enclosed letter sent to me by Mr. Hj. Stälhammar, of Gothenburg, editor of the *Swedish Bee Journal*, anent my letters on 'Candy;' and as his questions are most carefully considered, and some of them may occur to the readers of the *Journal*, I take the liberty of forwarding it for publication, with a copy of my answers thereto; feeling sure I shall be pardoned for doing so, considering the importance of the subject:—

Sweden, Gothenburg, 16th August, 1883.

Dear Sir,—Having read your very interesting article in the August number of the *British Bee Journal*, pages 118, 119, you will pardon me troubling you by some questions—the wintering of bees, and especially the avoiding of 'spring-dwindling,' being of very great importance.

1st. Will you kindly forward to me Messrs. Neighbour's price catalogue, enabling me to see their feeder, No. 101, especially their other goods also?

2nd. Considering pollen in winter when eaten by the bees would be the cause of dysentery, why do you use wheat-meal in your candy, to be consumed by the bees all the winter through?

3rd. I am using frames of the German Standard measure, 22.5 cm. × 37 cm. (= 9 ins. × 14½ ins.), and hives with frames of half the height, too, besides some other sizes of the frames (I have different patterns, keeping an apiarian school here). You say, 'I would give one 6-lb. frame of this candy to six frames well covered with bees about the 20th September, removing as many combs without brood as possible, and extracting the honey from those which do [I don't at all understand what you intend to express with this], putting this frame of candy well amongst the bees [do you mean in the middle or width of them?] and one empty comb—to keep candy warm and bees from being chilled—on the outside of it.' Well, (*a*) do you think it proper to have the candy-frame quite filled all the frame through, the bees having at first in the autumn a very cold sitting-place on the candy when clustering on both sides of it? (*b*) Do you think it possible for all the bees to be able to cluster just upon the candy? I believe they will and must sit upon the empty combs, or where they are partly filled with brood; and if so, do you think they easily will have access to the candy, or the candy easily to be forwarded to them by their sisters, living or sitting far from them, on or in the close neighbourhood of the candy-frame? (*c*) Supposing one candy-frame being not sufficient, can I use two? Can I place them in the middle of the hive; and if so, how? (*d*) Supposing I have some hives with the flight-hole just the width of the front, will it do only to have one empty comb on the one side? Is it not necessary to have one on each side of the brood-chamber in the width, on both sides contracted by dummies?

4th. Have you any experience of giving the bees plenty of air during the winter? I have found this very valuable, to such a degree that I believe more bees are killed and lost through want of air than by starving, and that want of air will in most cases cause uneasiness, unquietude, and, of course, dysentery. Having the flight-hole open to its full width—say 8 inches in the winter-time—there is no need for top ventilation at all—all the bees and combs are dry, never mouldy. I have seen bees in this way wintered well in hives of 1¼-inch boards, when the thermometer has been showing 26° Cels. (13° below zero), for several days and nights, and without any cleansing flight for five months.

Hj. Stälhammar, *Editor of the 'Swedish Bee Journal.'*

Dear Sir,—I answer your questions as follows:—

1st. Have forwarded one.

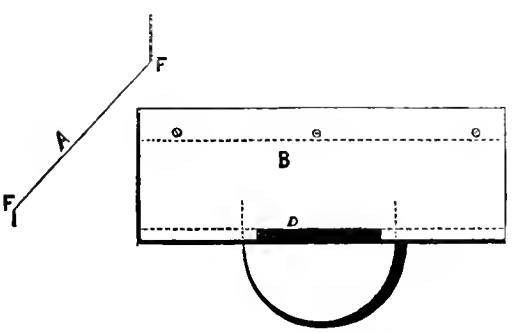
2nd. The small amount of flour in my candy is made quite soluble by first boiling it in the water, when it afterwards becomes intimately blended with every particle of sugar (making it of the nature of honey), and which makes the candy a full and sufficient food to replace the small amount of tissue worn away during winter. One cause of dysentery is want of air (see 4th), and a striking experiment to illustrate this fact is to put a frame of comb containing exposed pollen and not much honey into a hive having a small entrance, in warm

weather, and introduce some bees into it; confine them only for twenty-four hours with very imperfect means of ventilation—say the flight-hole covered with perforated zinc—when they will be very dysenteric, and when let out, the shower of dysenteric pollen discharges, as the bees fill the air, will be a sight to see.

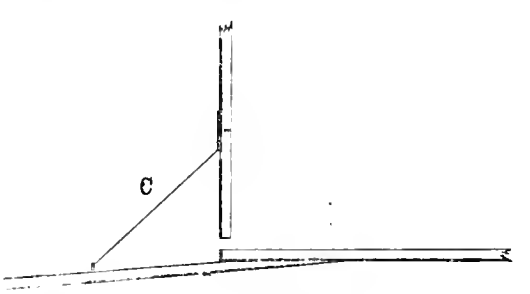
3rd. The candy was not given to the two stocks last winter till after the middle of October. I have been experimenting with it, and I find that if bees can fly and get to water, they convert it into syrup; and this seems to explain why the candy disappeared very quickly in the early part of May: so I am inclined to think the middle of September (as I previously recommend) will be full early to introduce it; and if the bees are not starving, it may be given at any time before cold weather actually sets in. So I shall stop feeding on Sept. 1st; and if they have not much food left on the 20th, I shall let them run to nearly starvation point before giving it them. By 'a 6-lb. frame of candy to six frames well covered with bees,' I meant to give two frames if the bees cover *more* than six frames—thus, if they cover eight frames, about four may contain brood, which I leave in the middle—I then put a frame of candy on each side, putting an empty comb on the outside of them, closing all up with division-boards; if bees cover twelve frames, then only two frames of candy; and if five frames, they would have three combs to cluster in, the next being candy, and the next one empty; if four frames, then only two to cluster in; if less than four frames, unite; thus I remove a frame of comb for each frame of candy I put in. When I say covered I don't mean 'crowded,' but what will fairly sit all over the combs on a mild day—see 4th. (*a*) Yes; quite filled I inch, or so thick; and it will hold fully 6 lbs. of candy. I don't consider candy by any means a cold place to sit on, as it is a very imperfect conductor of heat, whilst honey is a good conductor, and this fact is an important factor in its favour. (*b*) No; the bees can't all cluster on the candy, they change places with each other; and the exercise of 'crawling,' or changing places, has a most beneficial effect—it helps to keep up the necessary warmth without excitement. (*c*) Yes; you can use two (see 3rd); you could also put a frame in the centre of hive if it contains no brood; but I could not advise 'cutting' brood with candy, in fact, I consider it a great mistake to cut brood at any time. (*d*) If your combs are across the entrance, put the candy in the rear and close up with a division-board; if the combs run from front to rear, you may put it on either side, contracting up one side with division-board: I would always put a cork-dust or chaff-cushion on the outside of division-boards.

4th. My experience fully confirms yours. I believe the contracting or zig-zag entrances of Cheshire, Abbott, and others, have directly and indirectly killed more bees during winter than any other cause I know of—I might say, all others combined; they are designed to keep out the sun's rays during winter, and assist weak stocks to defend themselves from robber bees, which said weak stocks ought not to have been in existence, and which is certain ruin to strong ones. The designers of these entrances forget bees do not ventilate their hives in winter, for if a hive be opened on a cold frosty day, the bees will be altogether in one cluster, and will appear quite 'drowsy,' and none will be found near the entrance fanning; if any attempted to do so, they would soon be chilled. How, then, are hives ventilated in winter? Well, if we take an empty hive with a very wide entrance-way cut out of the hive-side, and cement an impervious top on it, and then place a lighted candle or lamp in the inside, we shall find a current of air going in at one side of entrance and one out at the other, which can be proved by suspending a bit of floss or fluff-feather on the end of a fine thread; whereas, if the entrance is very narrow, no current will be visible, and the lamp will soon go out. If, now, we consider the warm cluster of bees in the nature of the lamp—for they always cluster on one side, and filling empty cells, leaving a vacant place, if not crowded too much—we shall at once understand why a good wide entrance-way is an absolute necessity, and a narrow one certain ruin; for the fresh air passes through the bees, down the hive-walls, and out again; and this is one of the reasons why combs across the entrances are the best; whilst if the door-way is too narrow, the bees are half suffocated, causing them to perspire, be excited, eat pollen, and become dysenteric (see 2nd). It is my opinion, if bees are kept dry and warm on fire-sides, they may have a wire-cloth bottom to stand on all winter, provided light is also excluded. Another mistake, which may be seen in nearly all hives turned out by our best makers, is fitting on impervious wooden roofs, with just two or so ¾-inch holes covered with wire cloth, so that the perspiration from the bees condensed on the roof falls back on the quilt, making it damp. When upward ventilation is at an end, and the flight-hole being too small to act as a 'safety valve,' the stock is ruined; if the wind could freely blow over the quilts or chaff-cushions, the perspiration would be blown away before it could condense, thus keeping them dry. There might also be a shader to keep the light from entering into hives during winter, made of tin plate, and covered on the under side with a mixture of lamp black and French polish, let down with methylated spirit, by which I can get a 'dead' black—not a shiny black—and which will not reflect any light into hive.

I enclose a sketch of the 'shader;' A shows it in section, B ground-plan, the dotted lines the creases at



F F; D is an entrance cut into it, and allows bees to leave and return to hive without hindrance; C shows it fitted to hive: you will see it overlaps the flight-board to a great extent—it might extend the whole front of



the hive—which eventually prevents snow closing the entrance up. I am sorry to say the 'ruinous' narrow entrances for winter are recommended in the latest edition of *Modern Bee-keeping*, just out.

Trusting I have written my answers as you can understand them.—John Hewitt.

BEE-CANDY, SYRUP &c.

I am much obliged to Messrs. Hewitt and Saddler for their kindness in answering my question as to bee-candy. I have made a bar of candy according to the former gentleman's directions, and did not find it so very troublesome a process as Mr. Saddler infers.

Now a word as to stimulative syrup, and the time for using it. Mr. Hewitt advises us never to use vinegar or any acids in syrup. Why? He also says never use syrup after the end of August. Again, Why? A friend of mine, an old and successful bee-keeper, commences to feed at the end of August, or beginning of September, and feeds well into October, and his bees come out strong and well in spring. The syrup he uses is made in the following way: 5 lbs. of best lump sugar, to which a pinch of salt is added, is boiled in one quart of water, adding a table-spoonful of vinegar after lifting off the fire. He never finds this syrup to crystallise with him, though used through an ordinary sweetmeat bottle, with a piece of Hessian tied over the mouth. Mr. Hewitt's syrup is to be used from a feeder costing 3*s.*; this would make an expensive item in an apiary of, say, twenty hives, and would not be following up the thrift he preaches in connexion with 'honey ripeners,' and which ought to be the first principle with bee-keepers. — CORNUBIA.

[See Mr. Hewitt's letter, pp. 154, 155.]

'HOW TO GET PLENTY OF SUPER HONEY.'

In the last number of *B. B. J.*, page 134, C. C. James gives an account of super honey taken from one hive. It may interest some bee-keepers, especially those who wish their apiary to be profitable in a pecuniary point of view, to hear the result of one of my hives.

I bought the hive at the close of last year, a bar-frame hive containing nine frames fairly well stocked with bees and honey. I fed slightly in late winter and spring. I supered early, as I was leaving home for some weeks, and I wished to prevent swarming. On May 10th I put on a crate of 21 1-lb. sections, which, when the bees took to it, was quickly filled. Hearing they had nearly finished it, I wrote and said, Put another crate on top, which was done, and on my return, June 23rd, I took 40 lbs. perfectly full and well built, for which I took a first prize at our Cottage Garden Show in July. On removing these two crates, I at the same time placed another crate of 18 lbs. on the top, and a few days after, finding it nearly full, I raised it, and gave the bees another crate underneath. The top one, weighing 18 lbs., I removed well filled on July 20, and have just taken the last off, seventeen out of twenty-one sections being full, thus making a total of super honey from the one hive of 75 lbs.

I am now inclined to think, having tried both plans, that it is not well to raise a super and put a fresh crate under, as it disturbs the bees, and gives them much unnecessary labour in propolising. I subjoin a debtor and creditor account of this hive.

Dr.	£	*s.*	*Cr.*	£	*s.*
Cost of hive in autumn 1882 . . .	0	15	75 lbs. of honey at 1*s.* per lb . . .	3	15
Estimated feeding .	0	5			
Profit	2	15			
	£3	15		£3	15

The feeding I have estimated at 5*s.*, but I cannot speak positively, as I was feeding five other hives at the time, but I believe I have rather over than understated the amount. As to the sale of honey, I have put that at only 1*s.*, though I believe it might have realised fifteen or sixteen, if not eighteen pence, per lb., as it was very perfectly built, and of an exquisite colour and flavour.—ARTHUR B. LIPSCOMBE, *Frogmore, St. Albans.*

THE CULTIVATION OF FIGWORT (*Scrophularia nodosa*) AS A BEE PLANT.

My first plants of figwort I obtained from the woods in spring when they were about three inches high. The roots were divided into one or two rhizomes and planted in a row of deep soil one foot apart, and ultimately attained a height of four and five feet. They were cultivated by two deep hoeings and were also earthed up like potatoes. The second spring every alternate plant was taken up and divided. The next row was planted four feet from the old one. Every one who has bees and a garden should grow some, if only a short row, as from morning to night, for four months in the year, the bees (and wasps) will be busy on the plants. I cannot recommend the raising of the plants from seed—it is too tedious a process; the plants can be multiplied indefinitely from the rhizomes, and are quite vigorous enough if not grown too long on one spot; three years in one station is quite sufficient.—J. M., *Faversham.*

OBSERVATORY HIVES.

'Ebor' will kindly notice I made my offer conditionally. I presume he has seen most of the observatory hives in the market, if he has and will select which kind suits him, I will write him dimensions, and instructions how an amateur joiner may put one together, with very great pleasure. People's ideas of cheapness vary so considerably that I cannot guess what he will reckon cheap, but one can be made; in fact, I had the pleasure of seeing one made by a clergyman, the Rev. A. Booker-Hill, of Whissonsett, Norfolk, and placed in his parish school for the instruction and amusement of the rising generation of *bonâ-fide* cottagers, thus giving an example I should delight in seeing followed in every school in England; but this only differed from other observatories in that it was made of cheaper material and not finished so elaborately as most are which are really intended to be placed in sitting-rooms.

I have no idea of attempting to invent any new kind of observatory; if I had I should prefer to make one and introduce it to the bee world through our leading shows, before giving a description of the manufacture of it in these columns; but, to confess the truth, I am not in love with observatories, for the simple reason that they are chiefly made of glass, which is the most unsuitable material for bees to make their home in.

The ordinary observatories that get the prizes year by year at the leading shows are as much unlike a natural cluster of bees as we can possibly conceive it to be. Undoubtedly the straw skep in shape stands first, we make the combs moveable for our convenience and call them bar-frame hives. Messrs. Abbott have constructed and frequently exhibited and also given detailed instructions how to make a bar frame-hive with glass walls and crown-board: it is most ingenious and has won several prizes, but it is like wood hives in this respect, you cannot see what is going on between the combs. There was one exhibited at Knightsbridge this year where the combs were swung on a centre column that formed the entrance for the bees, which gave ample opportunity for full view of each side of every comb; but as each comb was separated from the other by a sheet of glass, this of course prevented the bees from clustering as they would naturally and thus conserving heat which is so necessary in winter.

I may say for 'Ebor's' information the general plan adopted is to winter bees in an ordinary bar-frame hive and place them into the observatory in spring, as the weather opens. This is the reason why I asked to name the number of bar-frames he wished his to hold. It also has the further advantage of being able to assist the bees with frames of brood or store or bees as they may require, which I believe in many cases is pretty frequent.

I will still keep my promise if 'Ebor' complies with my conditions.—AMATEUR EXPERT.

WORKERS IN QUEEN-CELLS.

Several correspondents have mentioned the finding of workers in queen-cells. This is a frequent occurrence, and is easily explained by the fact that after a young queen hatches out the workers go in and clean out what is left of the royal jelly. The cap flies back and is sometimes waxed round again by the bees, when the imprisoned worker of course dies. A close inspection will always convince one that the cell had previously been opened by the queen. When young queens are not wanted out, because bad weather prevents swarming, the cappings are frequently waxed up again where they have been biting round, but sooner or later they know how to let themselves out; whereas a single worker, when once confined in a similar cell, knows not how to release itself. Sometimes a bee-keeper thinks he has found a perfect queen-cell which has never had a queen in though capped over. The capping, however, has been fastened in the same way after the queen left; though frequently it requires the closest observation to find that a cap has simply dropped back to its former position so exactly does it fit.—S. Simmins, *Rottingdean, Brighton.*

FIXING FOUNDATION-COMB IN SAW-CUTS.

Seeing that some of the readers of the *B. B. Journal* had some trouble in getting comb-foundation into saw-cuts, we thought it would not be out of place to give our way of doing it. We first force the saw-cut open with a wedge, then we slightly drive a staple into the back or top side of the top-bar, one point of staple into each half, then draw the wedge, and all is quite clear for inserting foundation. When it is in its right position draw the staple, when the bar springs to and holds foundation. We then drive four shoemaker's rivets through the frame and foundation, which hold it quite firm.—G. Wells and T. Hart, *Burham Works, Aylesford, near Maidstone, Kent, Aug. 14th.*

DEAD BEES.

I see by *B. B. J.* that one of your correspondents speaks of his bees turning out large numbers of dead and dying bees, and having a somewhat similar experience I thought it would be desirable to put on record my own case. On the first Monday in August, having a few hours to myself, I set to work to take what honey the bees could spare from their stores. I gave each hive a little smoke. After taking one frame away and extracting the honey, when I got back to the hive with the empty comb I found very large numbers of bees on the wing, and the bees fell to the ground in large numbers, dead and dying. This occurred to each hive as I operated upon it, and by the time I had done there were thousands of dead and dying bees upon the ground. I thought there might be some fighting to cause such a slaughter, so I closed the entrances to the hives. This appeared to alter nothing, and the next day the bees continued to bring dead and dying bees out of the hives, and one or two of them continued to do so for three or four days afterwards. Now a neighbour of mine has got one hive in his garden belonging to me which I did not operate upon then, and this hive is about four hundred yards from my garden. On Saturday, August 11th, I went to this hive to take the honey in the same way, and all round about this hive there were large numbers of dead bees, but these bees had not been disturbed in any way, so I think it could not be disturbing them which caused the slaughter in the other case. A few days after this my neighbour's (Mr. Hart's) bees have had much the same befall them, and they have not been disturbed in any way. It is not glass in the hives which has caused it, because we have none in them, and no other light can enter the hive only through the entrance. Of course we have talked and wondered a great deal about what might be the cause, and the following appears the most likely to us:—Now we have had six weeks of very dull and damp cold weather for the time of year, and the bees could not get out much, and we think if the bees had been able to have got out before they would have died through age, labour, or other natural causes. We should be very glad, however, to have the opinion of some others of your correspondents who are better able from long experience in bee-keeping to judge.—G. Wells and T. Hart, *Burham Works, Aylesford, near Maidstone, Kent, Aug. 15th.*

QUEENS.—UNCAPPED BROOD.—FEEDERS.

There is often a great deal of discussion as to the superiority of Ligurians over blacks; and some people say that there is a great difference in the Ligurian queens that are sold. May this be at all due to the length of time that the queens are kept in the small boxes in which they are imported? Some time ago one of the importers of Ligurians informed me that he was able to keep them alive for three weeks after he received them in the box they came over in, by changing the bees. Is a queen likely to be worth much that has been kept long in such a condition? And are they not often sold after long confinement?

There is a subject on which I have not seen any discussion lately in the *Journal*, and yet it is an interesting subject. Why do the bees sometimes leave their brood to mature without sealing it up? I wish some who have had a long experience would give us some of the rules, and if possible reasons, for this proceeding. My bees are doing it now, but I did not notice it in the earlier part of the year. Is it because of a scarcity of wax? or is it because it is hot enough for them to do without a covering? or is it scarcity of workers of a particular age? is it a sign of weakness, or of strength?

We seem a long way from perfection in the way of feeders yet, though several of the makers advertise their own as perfection. It is fairly easy to use any feeder for rapid feeding for winter stores; but it is not easy to make a feeder work with little trouble for stimulative feeding. My wish is for some feeder that will take three or four days' stores, will fill from the top without removing, that the bees will always use, and that will not mess or leak. I doubt whether we have got this yet. Will not some inventive genius discover one and give us the benefit of his discovery?—H. Aldwin Soames.

ANTS AND BEES.

We notice in *B. B. Journal* for July 15th, 1883, that Mr. C. J. Myers has been troubled with small black ants, and as it is thought that they do no harm, we desire to give our experience. Early in last May we set to work to raise young queens, and on examining the hives to see which to raise them in, we found that many of our hives had large numbers of the above ants. This we were rather alarmed at, and knew not what to do. This examination took place at our dinner-time, and we had not time to put the queens which we had removed where we desired, so we got a small box and put in three 1-lb. sections partly filled with honey, and placed the queen and a few of her workers in the box, leaving plenty of ventilation. We put the box in a well-lighted place under cover, and, as we thought, away from the ants, and about fifteen yards from the place where they appeared to resort. When we got home at night we proceeded to place the queen where we wanted her; but to our dismay we found the whole of the sections and the inside of the box quite black with ants, and every bee quite dead and partly eaten, and they had nearly cleared the sections of honey. This makes us think that the object of the ants is to rob the bees of their honey. We have now put a screw in each leg of

the hive and let it project about one inch below the wood, standing each screw into a small lead cup partly filled with oil (or water will do as well), and we have not seen an ant in the hives since.—G. Wells & T. Hart, *Burham Works, Aylesford, near Maidstone, Kent.*

MOVING BEES.

As many operations in the apiary now taking place may necessitate the moving of hives short distances, I may mention a method told me by Mr. J. Walton, of Leamington, and which I have tried in several instances, and with success. That is, when the hive is moved a large plate of sheet-glass should be placed in front and close to the entrance, so that the bees on their exit bump themselves against the unseen and unexpected obstacle, and thus mark the situation, differing only as to the old plan of marking parish boundaries in this, that the urchins have the bumping done for them, while the bees do it to themselves.

My first trial was in moving eight hives from under a north wall, where the bees, heavily laden with pollen, and coming in late, were benumbed just in front of the hives. The whole of the hives were moved in their relative positions about four rods, and from behind a forward row sheets of glass placed in front of each hive. I saw very few bees haunting their old positions, which were not in any way disguised. But still, I would say to any one trying it, do it cautiously.—J. M., *Kent.*

LATE SWARMING.

On 26th July I divided a May swarm of Ligurians that were very strong in bees, but had no honey; this was late I know, but I wanted to make some progress this year, and as it was not to be done in the honey line, I thought this the only way of doing it. I took the bar the queen was on and one other, and put in the new hive with five sheets of foundation; these are now very strong in brood. The old lot set about queen-making, and sealed five queen-cells, the first of which hatched out on Sunday, 12th August. The next morning I found one dead queen on the landing-board. About 11 a.m. I noticed a great commotion, and on going to look at them closely, I found that a fine swarm was issuing; these were put into a bar-frame hive with one bar of brood-comb taken from the made swarm, and four sheets of foundation. I at once commenced feeding, and up to this time (Aug. 21st) the three lots have used 12 lbs. of sugar, and the foundation is combed well out; but the two young queens have shown no signs of laying as yet, though the weather is, and has been for the past week, simply beautiful, and drones are flying freely. As the drones from the black stocks in the neighbourhood have been about all killed, I suppose if my young queens get fertilised at all it will be by Ligurian drones, and I shall get pure Ligurian brood—one advantage with my late swarming. Do you think it is too late to do any good, if I feed well? Is the above a usual way for two young queens to settle their differences?—Cornubia.

[We hope your young queen may be fertilised. The mode adopted by your bees of settling their differences is unusual, but if the end is well it is a satisfactory procedure.]

HUMBLE BEE IN SUPER.

On removing the quilt from a strong hive of Cyprian bees yesterday, I was surprised to see a large humble bee fly out of the super crate. This bee must have worked its way up from the entrance below and got amongst the sections for the purpose of robbing. I have never seen a case of this sort before and should you think it worth putting in the *Journal*, you are at liberty to do so.—J. L. Shadwell, *Ealing.*

Echoes from the Hives.

Kent, Faversham.—We are having a glorious time both for bees (and hops). The former are hard at work daily, and are gathering ample stores for the winter. Breeding is actively going on, and in many hives I have now three-quarters of the frames with sealed brood and eggs. In drumming skeps for cottagers I find great variation, and while some few have stored a good lot of honey, the greater number have sealed very little—about one to two inches at the top of each comb, and in most breeding is not actively going on. If the present weather, with warm winds and electric showers, lasts for another week or ten days, my hives will have ample winter store from wood germander and golden rod.—John Marten.

Wisbech.—The honey harvest here has been very irregular; some have done well, and others nothing; we lost all the best of July, which was a great loss here, as we have in and around the town such a number of limes. Stocks now are very poor for food, but rich in bees.—J. Dann.

Uffington.—The honey season ended here the first week in August. The limes generally sought after other seasons have been almost entirely neglected owing to the abundance of white clover, which is usually over before the limes appear. The showery weather has told sadly against them this year. Stocks that were strong in May have collected from 30 to 50 lbs. surplus honey, one has yielded over 60 lbs. Swarming was very late about here, and many complaints have been heard about bees flying away after being hived. Cottagers who hive their bees in the old-fashioned skeps about the middle or end of June have their hives filled with comb and a fair weight of honey for wintering. Bees put into bar-frames at the same time with full sheets of foundation are in splendid order; and I think the wisest plan is to give the bees six or seven frames of their own collecting and pack them safely up for the winter about the first week in October, and let them rest until the end of February, and the result will be satisfactory.—T. S.

North Leicestershire.—Fourteen out of the first fifteen days in August were wet, and on the 8th no less than 2.36 in. fell. Such a swill of course put an end to honey-gathering from clover. Since then the bees have divided their time pretty equally between robbing and visiting garden-flowers. Borage, Limnanthes, Clarkia, and Marigold, seem most attractive to them. The final produce is very low in amount, and the majority of stocks will soon require feeding. On driving a skep-hive last week, Dr. Emmerson found a mouse, which, after entering the hive, had been stung to death, and picked clean to the bone.—E. B.

Rottingdean, Sussex.—Until the 17th August the weather remained unsettled, with much wind from W.S.W. Since that time, however, it has been E.S.E., and has brought very hot, still days, suitable for harvest, but too late for black bees to add much to their stores, though Ligurians have commenced working on second crop of red clover. Probably this weather will bring good reports from the heather districts; but taking it all together we shall have to put the season down as under the average, and little better than last year for honey, though decidedly warmer and more suitable for queen-raising. Driving bees from skeps for cottagers will soon be the order of the day, but how few go the right way to make them profitable. There is no economy in putting such bees, late in the year, on to foundation, when other established stocks in frame-hives can, with profit, have from one-third to half of their combs taken away from them, and which are just the thing for these late made colonies. Even when two or three lots are put together,

and do manage to build out most of the foundation, such tender combs are not fit to bring the colony through a severe winter; besides one-third the amount of sealed stores in old combs will last longer and be more profitable. Neither is it advisable, so late in the season, to place sheets of foundation in strong stocks even, in the hope of getting them built out. If fed liberally with syrup, every cell of the older combs will be filled rather than they will attempt to build fresh comb. Where one expects to obtain driven bees, his first duty should be to carefully calculate how many combs his old stocks will spare him, when he crowds them together for winter; and if he finds he will not have enough (though only four or five combs should be allowed for each new lot, even if for a time they are crowded out at the entrance) he should, early in August, make new swarms of one or more of his strongest lots, giving the whole of the bees to said swarm on their own stand, when with liberal, but judicious feeding, they will soon build out foundation, providing they are crowded on it with division-boards. The brood should be given to other colonies until the combs are required for the rescued bees. Beginners will, therefore, bear in mind that if they wish foundation built out in autumn, not a single old comb should be placed in the hive until the desired quantity is worked.—Saml. Simmins.

Kent, Blackheath, August 21st.—Here, within five and a half miles of London Bridge, the season has been very successful, and the yield of honey in supers good, in fact, far better than for the last two or three years. Although my hives are some considerable distance from any fields and some miles from any clover crops, yet, with the fruit-blossoms in the gardens around in the early part of the year, and a very large number of lime-trees from the latter part of July to the second week in August, there has been a plentiful supply of honey and of a good quality. They have now left off storing honey, and are killing the drones, and thus getting ready for wintering. With such accounts as were to be found in the 'Echoes from the Hives,' last issue of your *Journal*, it may be encouraging to many of your readers to know that bees within a short distance of London, without fields of white clover, &c., have done well, and have fully repaid the care and attention bestowed upon them.—H. S. S.

Sheffield, August 23.—The weather changed here for the better on the 17th, and has allowed farmers to finish getting in their hay, which should have been done in June. I find nearly all my bees had ceased breeding, owing to the cold weather, and had not much honey left. The summer is ended now, the harvest is past, and we have got no honey to speak of, so candy will have a fine chance this winter.—John Hewitt.

Somersham, Hunts, August 24.—With the exception of about ten days, the weather since my last echo has been simply glorious. Bees are working well, particularly those near mustard and buckwheat. Several stocks I placed in a field containing crops of mustard and buckwheat have during the past fortnight or three weeks gathered a very large supply of food. I have only been able to hear of one full super being taken in the neighbourhood. Cottagers' swarms, particularly the late ones, are in a wretched condition. I have driven several lots of bees during the past week, but in no case have I found more than 10 lbs. of honey. We cannot expect to do well every year, and considering that we did very well last year we must not complain. The stocks in skeps in my apiary last year gave more than 30 lbs. of fine super honey before the middle of June.—C. N. W.

Leamington, Weston, Aug. 25th.—No work done of any account since last report, only extracting honey, and getting the hives ready as far as I can for winter. I have been down to Knowle to our Hon. Sec. extracting honey, and find that his bees have not done any better than my own, but we extracted a nice lot of honey. I may say that, take the season altogether, it has not been quite up to the average.—John Walton.

Dublin, August 22.—The weather here has been variable since my last. The bees are gathering a little now from suburban gardens (mignonette, asters, and other flowering plants) with variable success. In fact this has been a curious season; one week the bees were filling sections, next week clearing them out, though there were plenty of bees and brood. Last week I drove two early swarms of Ligurians from straw hives; there was not more than a couple of ounces of honey in either of them. This is a poor look-out for straw skeppists if they do not feed up their bees. Thus there is one advantage, at least, in bar-frame hives—that you can see the exact quantity of honey contained in them, while you can only guess the proportion in the straw skep. I was about to winter the bees in the straw hives, but I had my doubts, not being unable to examine them without driving. It was well I did so, as the straw hive and bees were so heavy that I was mistaken in the quantity of honey contained.—J. P. Allen.

East Donegal, Finn Valley.—The honey harvest in this district is a disastrous failure, which is the more to be regretted as several persons, including myself, have used bar-frame hives for the first time. There was a good crop, comparatively speaking, of white clover, but during the time that it was in best bloom, the weather was most unfavourable for honey-gathering—rain, rain, rain!—and the bees had to remain at home and be fed artificially. For the past week we have had very fine weather, and I noticed the bees very busy on the benweed (a tall, yellow plant growing on pasture not frequented by sheep), thistle, meadow-sweet, &c., but all hope of surplus honey is gone for this year. At the Strabane Bee Show, on the 8th and 9th inst., though there were several prizes for honey in sections and otherwise, there was not a single pound of honey exhibited, the bees having taken it down during the rainy weather. I am afraid that the north-west of Ireland, owing to the humidity and variableness of its climate, will never be a good district for bees. The white clover grows fairly in some places, but in the south and west of Ireland, which is nearly all pasture land (the north is chiefly tillage) there should be good prospects from white clover.—Apicula.

Queries and Replies.

Query No. 685.—1. *Supplying Water in Early Spring.*—I have read in several works on bees, that water must be supplied them from within, if the weather be too cold and stormy for them to venture forth: how is this to be done? 2. *Removal of Supers.*—Also in applying supers in summer, Mr. Cowan remarks, if after the bees have taken to the supers, and have begun storing honey in them, the weather suddenly changes to wet and gloomy, he removes them and supplies the bees with food, if necessary: do you think it desirable to do so; and how are the bees quickly made to quit the supers?—R. T. B., *Penzance.*

Reply to Query No. 685.—1. Many bee-keepers supply water by means of a sponge placed over the feed-hole and well saturated with water. 2. There are very few seasons in which the removal of supers, as in the case supposed, will be found necessary, since it is undesirable to super hives until honey is coming in freely. If, however, the bees should be found starving, the supers must be removed and feeding resorted to. A little smoke will rid the supers of bees.

Query No. 686.—*Destruction of Drones.*—I have a Blow's bar-frame hive of ten frames with a section-crate

of 21 1-lb. boxes on it all full of bees apparently, and all most actively engaged until within the last three or four days, when I noticed drones being dragged from the hive; and later, larvæ, apparently young drones, are being thrown out of the hive, several dozen of them lying below the hive, and some bodies at the entrance just within the doorway are to-day visible. A great change has come over the bees, they no longer show the activity they did before. What should I do? I have ordered a larger hive with room for fifteen bar-frames, my idea being to encourage breeding by feeding if necessary, removing the super as it is, finished or unfinished.—T. P. C., *Pont-ar-Pan, Brecon, Aug.* 8.

Reply to Query No. 686.—The destruction of the drones is certain sign of the cessation of the incoming of honey from the fields. You will do well to remove the super and to feed if the bees require it, but do not remove them to a larger hive. You will probably find ten frames too many to winter upon.

Query No. 687.—1. *Removing Bees from Bar-frames.*—How are bees driven from bar-frame hives? 2. *Uniting.*—Would you advise putting three (skep) stocks into one skep of about 20 lbs. weight? Hitherto I have only put two together, except when three years ago I put four into an empty hive and fed. 3. *Super-crate on Quilts.*—Has the plan been tried of putting the super-crate on quilt provided with a slit at each end for bees to get to supers? as I find they waste so much time in storing between sections and bar-frame. 4. *Bees working in Super.*—The 'Blayney' frame somewhat resembles the plan of my hive tried this season. The back wall has excluder-zinc let in, against which I put a frame containing six sections covered outwardly by glass, but I found that although almost finished before I put supers on top, they left them and filled me seven, and four others, partly so. I may as well mention that I found a number of dead bees in the bottom sections at the back. One friend said, Perhaps the cover did not exclude the light, and so they wore themselves out in their efforts to escape. What think you?—De Lusignan Cyprus.

Reply to Query No. 687.—1. Bees are not driven from bar-frame hives. If it be required to change the bees to another hive they may be brushed off the combs, each comb being handled separately. 2. This depends entirely upon the strength of the stocks, and of the colony to which they are to be united. Probably you will not find three too many if united rather late in the season. 3. The plan would not work at all for various reasons. If a space of a quarter of an inch be allowed between the frames and the section-rack the bees will never build comb or store honey in a space so narrow. 4. Probably the bees died from struggling to escape through the glass owing to the light being only partially excluded. Bees prefer to work in supers. The use of back and side sections is to induce the bees to commence work in them, and when partly filled they should be removed to the super and replaced by others. If you had proceeded thus it is likely that the whole of your sections would have been completed.

Query No. 688.—*Wintering.*—Which is the best system of wintering? The books published by the B. B. K. A. direct one to stimulate breeding late into the autumn and then feed up rapidly; but in a letter published in the 1st of August issue of the *British Bee Journal* from Mr. John Hewitt, of Sheffield, this system is condemned by him as altogether wrong. 2. *Sealed Honey.*—In Mr. Cowan's book he states that 'the frames should contain sealed honey about one-third down from the top' for the bees to be wintered on. But how are six or seven frames thus filled to be obtained? All the frames in my hives are filled with brood, as they are very strong stocks, and they are working in the super-crates. Is one, therefore, to take these frames of brood out and give them frames of foundation to draw out and fill with honey? But would there be time for them to do this, and would they not also fill these with brood? 3. *Measurement of Sealed Stores.*—How can an inexperienced person know what 'two superficial square feet of sealed stores' is? Is it not just as good a plan to place two sticks and pieces of candy across the tops of the frames to admit of the passage of the bees over them, as to cut passages through the combs? 4. *Syrup or Candy.*—Is it best to feed with liquid syrup or candy for wintering on? 5. *Detaching Excluder-zinc.*—How is the sheet of excluder-zinc to be detached from the frames when the bees have propolised it firmly down? 6. *Giving Water to Bees.*—What is the best way of giving bees water, as I have tried the way one is directed to do it in the books, viz. a bottle inverted on a plate; and not a bee will go near it? 7. *Avoidance of Stings.*—Is there any means of protecting one's self from stings by wearing any dress which they cannot get at one? Dr. Pine's veil protects the head, and woollen gloves wetted, to a certain extent, the hands; but when illness ensues it is a serious consideration, and there ought surely to be some infallible invention for such persons to whom it is so necessary. 8. *Smoker.*—Is there any good smoker invented, as the one I have is supposed to be, being by one of the best makers, but the sparks fly from the blow-hole under the tube, and it has three times set me on fire?—Inexperienced.

Reply to Query No. 688.—1. We consider it best to feed largely when required, from the middle of August till late in September, when stimulation by slow feeding is all that is required, let it be done about the same time. Opinions on this, as on many other subjects, vary considerably. 2. Your bees are singular. In nine cases out of ten frames are filled as Mr. Cowan describes. If the outside frames are filled with honey, extract it and give back the emptied combs, which the bees will clean, placing one or two near, containing worker-cells only, the centre of the hive, and feed liberally, having first removed the supers, since by this time the honey harvest will be over. 3. A frame 12 inches square, if half filled with sealed honey on *both* sides, will contain *one* 'superficial square foot of sealed stores.' The definition is most simple. Weight is the best criterion, however. Every strong hive should contain at least 20 lbs. of sealed honey. We prefer honey to candy, and winter passages cut through the combs to passages over them. 4. Syrup in the autumn; candy during winter, if required, and at spring. 5. By passing a thin honey knife beneath it. 6. In a shallow trough, covered with thin lattice-work, and placed where the sun's rays are upon it all day, but where it is sheltered from winds. 7. There is no royal road for the avoidance of stings. Use a veil if you please, but no gloves. With careful handling, gentle treatment—no jarring the frames, and no hurrying or quick motions,—you will escape stings, on the *hands*, at least. Let *care*, *courage*, and *practice* be your watch-words. 8. Order from Mr. Neighbour, or some other dealer, an '*Imported* Bingham smoker;' ask some practical bee-keeper to show you how to use it, and you will be satisfied. Brown paper is the best material, and do not fill too full.

We have had a further communication from 'Inexperienced,' in which are repeated the majority of the above queries. Our correspondent further asks, 'Is it possible to keep Ligurians pure; and if not, are the hybrids more savage and unmanageable? Are not Ligurians much more profitable than English bees?'—*Reply.*—It is possible to keep Ligurians pure, but very difficult to do so; the probability is that the Ligurian queen would mate with a black drone, and the result would be hybrids, which are much more irascible than the Ligurians, but are good workers. Ligurians are much more profitable than the blacks, as the Ligurians are able to get honey when and where the blacks are unable to do

so. We have before us a letter from a correspondent who writes:—'Should this weather continue I shall have the best opportunity yet afforded of proving the value of Ligurians on second crop of *red* clover. Last year sanfoin and that came together, but this time the former is now over, while there are many acres of red clover only just coming on. Already I find the Ligurians busy on it, while the blacks are idling round their entrances.'—*Burrowing bee.*—The bee forwarded is not a honey bee, but a species of *Andrena*.

Query No. 689.—*Feeding Condemned Bees.*—How many pounds of sugar will be required to feed up a stock of condemned bees if I add a frame of candy? Should like to know in next issue.—A. King.

Reply to Query No. 689.—There would now be considerable difficulty in feeding condemned bees for the purpose of rearing brood, but if you can command some old combs to give them, they will only require a pound or so of stiff syrup (given quickly) to keep them alive until you give the candy. See answer to J. Shann, No. 690.

Query No. 690.—1. *Driven Bees.*—Could bees driven from their hives in the first week of September be made to keep through the winter? I know of a few hives that will be taken about then, and the bees destroyed in the usual way. Would they be worth keeping after this time of the year, and so far north as this place? 2. *Cost of Wintering.*—What would be the probable cost of wintering condemned hives until they could do for themselves?—J. Shann, *Leeds*.

Reply to Query No. 690.—1. Yes, certainly; and if you can obtain a few old combs, either from other frame-hives or transferred into frames from straw-skeps, and give them a little stiff syrup to last them till October, and then give them a frame of candy, you ought to have a fine stock when spring comes. 2. 1 lb. of Demerara sugar for syrup, 3½*d.*; 6 lbs. ditto for candy, at 3½*d.*, 1*s.* 9*d.*; total, 2*s.* 0½*d.*

Query No. 691.—1. *Weight of Hive.*—How heavy ought a straw-skep to be without the floor-board to last a pretty strong stock through the winter? I examined one yesterday, but could not see how much honey there was on account of their storing it at the top of the combs. 2. *Placing Candy in Hive.*—Also can you tell me where Mr. Hewitt means the candy frame to be put? In one place he says, Put it well among the bees, and in another place I understand it is to be put first dummy, then empty comb, and then candy. 3. *Hatching Brood.*—Also what is done with any brood that is left in combs after extracting when reducing number of frames for winter?—F. F. M'Kenzie.

Reply to Query No. 691.—1. Twenty-five pounds; but if it does not weigh this, you will find it will take nearly double the weight of Mr. Hewitt's thick syrup to make it up. Thus, should it weigh 20 lbs., you will require nearly 10 lbs. of syrup, given *rapidly*; gradually turn it round to face the east—where it ought to always face. See that the entrance is a wide one; contrive to fix Mr. Hewitt's 'Shader,' see p. 155, and if you are not going to cover it with straw see that the wind can blow freely *over the top*. 2. The old form of frame-hives (which consisted of 6, 8 10, or 12 frames) had no regulating tight-fitting division-boards, but simply loose dummies, therefore all the combs are left in all winter, and the bees may, or may not, cover half of them, so that in these hives it is necessary to put the candy well among the bees, or they might not find it, particularly if they had any brood, which they would be loth to leave. For more particulars on this point see Mr. Hewitt's letter on p. 155. 3. Leave it in to hatch out, only see that it is all close together.

Query No. 692.—*Bee-Keeping in Olden Time.*—Can you give me any information as to the system used in the days of Aristotle, 330 B.C., viz., the kind of hives used; and how the honey was obtained; and whether the system of suffocation is at all mentioned?—J. P.

Reply to Query No. 692.—The knowledge of that which Aristotle wrote concerning bees will cast but very little light on the matters on which our correspondent seeks information. For though Aristotle was a famous philosopher and a man of universal knowledge; and though Philip of Macedon, on the birth of his son Alexander, might thus write, 'I thank the gods not so much for making me a father as for giving me a son in an age when he can have Aristotle for an instructor;' yet we think he would fared but sadly if he had attempted to pass through the examination on bees required of the experts at Knightsbridge. Aristotle was a philosopher, not a bee-keeper. But we are indebted to him for giving in his writings a permanency to the crude thoughts and glimmering ideas which were prevalent in his days respecting bees. These thoughts and ideas were, as we may well believe, of the vaguest kind. For instance, respecting the generation of bees we are informed that they were the offspring of certain shrubs, such as the honeysuckle, the calamus, and the olive-tree; and a comparison is instituted between the fertility of olive-trees and the abundance of bees. Wax is described as proceeding from the tears of trees, and honey as falling from the air. The life of the bee, according to him, extends to six and seven, and even in some cases to ten years. Honey, we are told, in Pontus is made twice in every month; while that in Themiscyra is produced only in winter, for there the ivy flourisheth. Yet amidst these crepuscular ideas there are some glimpses of light. He states that drones are males and that the honey bees are the females. He says that in every hive there are leaders, or kings (*βασιλεις*), but also that some of these are called 'mothers.' These kings have stings, but they do not make use of them. He notes that the best kind of bees are small, round, and variegated, thus foreshadowing the Ligurians; that in dry weather more honey is produced, and in rainy seasons bees are more prolific; that honey at first when deposited in cells is watery, but that in twenty days it acquires consistency. He gives no information, however, as to the hives used in his day, and but little respecting the management of bees. We cannot trace the practice of suffocation to his time. We do not believe it was then practised. In our previous reply to our correspondent when mentioning the mode of taking honey in the time of Columella, we intimated to him that the practice of suffocation took its rise somewhere between the time of Columella and that of the Rev. C. Butler, the author of *The Feminine Monarchy*; in fact, we consider he may take it for granted that the practice took its rise during what are called the dark ages,—to which time we can trace, not only in bee-keeping, but in more important matters, many an incubus which still presses heavily upon us.

Query No. 693.—1. *Rapid Feeding.*—Do you approve of Mr. Cowan's plan of rapid feeding (*Guide-book*, p. 81) —making *one* colony store syrup for *all*? Instead of the paraffin stove to keep the temperature up, will placing the hive in a warm room do as well, taking care to ventilate properly, and carrying the hive to its former stand every third or fourth day to give the bees a fly? 2. *Queens and Egg-laying.*—Do young queens often deposit more than one egg in each cell? A comb lifted from a nucleus had a patch of sealed brood in the centre, but round this were many cells containing several eggs (in one I counted seven), and further out plenty of eggless cells. Is there anything the matter with the queen? The population is small, occupying four frames in a single-walled hive, with a very light quilt.—W. E. Best.

Reply to Query No. 693.—1. Mr. Cowan's plan is a good one if you can carry it out. Your plan would only lead to failure and loss of the stock. By starting now feeding one stock very liberally you could get

combs worked out from foundation, and stored sufficient for several stocks before the time for packing for winter arrives. We are now working three strong stocks to supply stored combs for condemned bees. These three stocks have taken and stored in one week upwards of 200 lbs. of syrup. Mr. Cowan's plan is suitable for rapid storage later in the autumn, when the days and nights are getting cold. 2. The young queen has not enough bees with her to cover all the cells she could fill with eggs, and she lays several in one cell. All that is the matter with her is that she is unable to exert her full power of egg-laying; give her to a stronger stock, or give her more bees to cover her combs, and a thicker quilt or a crown-board.

QUERY No. 694.—1. *First Swarms and Honey.*—Do you expect supers filled by first swarms? 2. *Frames for Wintering.*—How many Woodbury frames of honey should be left for wintering? 3. *Clipping Queen's Wings.*—How do you clip the wings of the queen (to mark her)? 4. *Feeding.*—In one hive, I have one frame (last but one from end) almost entirely without comb (I have no foundations), and it has been so for two months, as little honey is collected here after end of May. If I feed, will comb be built, or will the food be stored in other combs as honey?—MALTA.

REPLY TO QUERY No. 694.—1. Yes; if they come off when there is plenty of honey to be had. They should be fed for the first fortnight until they have built out their combs, and then supers may be put on. 2. As many as the bees will cover on both sides. 3. Hold her carefully, so that you do not clip one of her legs also, and with a sharp pair of embroidery scissors, take about $\frac{1}{8}$ inch or less off the under hinder wing on one side, or both if you prefer. 4. If you wish to have the frame filled, put it in the middle of the brood-nest and feed, not too rapidly, or drone-comb will be built. If there are not enough bees to cover all the combs, remove two or three, and close up with the division-board. When built feed up for store for winter.

QUERY No. 695.—1. *Single Wall Hives.*—Will single wall hives with the wood roof $\frac{1}{2}$ inch above frame-tops do to winter bees in? When the nights are cold, I see that the damp runs out at the entrance. 2. *Halley's Handy Book.*—Where can I get a copy of the book on Queen-raising; I mean that one reviewed a few numbers back; also price? 3. *Suitable place for an Apiary near London.*—Please name a place within forty miles of London where a good spot could be found to keep a large number of hives.—T. S. B.

REPLY TO QUERY No. 695.—1. Your query answers itself, if such a state of things exists now, what can you expect in winter? Put your single-walled hive into a large box making a way for entrance, and pack all round with chaff, sawdust, cork-dust, or similar substance, lay a bag of the same on your quilt, and raise the roof a few inches above the bag. 2. *The Bee-keeper's Handy Book* is procurable from Mr. Henry Alley, Wenham, Massachusetts, price about $1 25 cents. The copy referred to was forwarded to us for review. 3. It would be difficult to advise you of any one place in the area you mention, which covers 4800 miles. There are several large seed-farms in Essex and Herts. The fruit for the London market is nearly all grown in the valley of the Thames, and most of the commons in Surrey are covered with heather. All good for bees at certain seasons.

QUERY No. 696.—1. *Getting rid of Drones.*—Which is the best way to get rid of the drones, and how soon when not wanted for fertilising? 2. *Worker-cells.*—How can bees be made to work out worker-cells? I mean beyond the foundation sheets (they are full size). 3. *Extracting.*—Is it well after extracting the honey from the body of the hive, to close up to the number of frames intended to keep end hive on during the winter? I have supers on at present.—EDGBASTON.

REPLY TO QUERY No. 696.—1. You can use a drone-trap, of which there are several makes supplied by all dealers in bee appliances; but in a very short time, probably before you read this, the bees will turn them out for you. 2. If you use foundation of full size, only worker-cells will be built except on the extreme edges where a few drone-cells will be of no disadvantage. 3. When you take off your supers it will be too late to extract from the body of the hive, unless you give at least as much syrup as you take honey; leave all the frames in at present as the queen must still have room for egg-laying.

QUERY No. 697.—Last year the bees in one of my hives were killing one another; those who were killed appeared black. The stock dwindled down to a mere handful of bees, and one day I found them formed into a ball outside the hive; on separating them I found their queen dead. This year, again, those black bees are killed in one of the hives by the dozens, although it seems to thrive as well as the others. What is the cause of it? Is it a disease? If so, what is it, and how to remedy it?—JOHN CADU SEER, *Swansea Valley.*

REPLY TO QUERY No. 697.—Your bees are being robbed by a stronger stock. Reduce the entrance, so that only two bees can pass.

NOTICES TO CORRESPONDENTS & INQUIRERS.

MAJOR BLAKE, *Kinbarra.*—1. *Fertilised Queens.*—The old laying queen goes off with the first swarm, leaving queen-cells in the hive; one of these usually hatches out about eight days after. The second swarm, or cast, comes off generally on the tenth day, the young queen leaving the hive for the first time with the swarm is *not* fertilised. After the first queen hatches, the worker-bees protect those cells remaining from her attacks if a second swarm is to be thrown off. If they do not intend to swarm a second time, they allow her to tear open the cells and destroy the contents. 2. *Queen-cells.*—Before putting on supers or sections, the frames should be examined to see whether there are any queen-cells being raised, and if found they should be cut out; also, if the queen has space in which to lay eggs, those combs containing only honey should be extracted, and then placed between the frames in the brood-nest, when the sections should be put on, and they will usually take to them. If after this they do not take to the sections, and the stock swarms, hive them in a skep; repeat the examination of the frames, and again carefully cut out all queen-cells; then return the swarm, and if there is any honey in the flowers, the bees will take to the sections in a short time. 3. *Queen Hatching.*—The young queens begin to lay about twenty-one days from the date of swarming, at which time the hive will be found free from brood, and in a most suitable condition for extracting the honey.

H. A. S.—We shall be happy to receive any contributions that may promote the progress of bee-culture.

A. S. M., *Cornwall.*—*Foul brood.*—The comb forwarded contains stored-up pollen. Foul brood is unmistakable; the caps of the cells are flat, and concave, and ragged, with small holes of irregular shape. The cells contain a putrid, viscid, coffee-coloured substance, sending forth a disagreeable stench, which is perceptible some distance from the hive.

G. S.—Your letter has been transmitted to the person referred to in it. We beg to assure you that the readers of the *B. B. J.* take no interest in such details.

L. S., *Sidcup, Kent.*—*Honey.*—The honey forwarded has a strong aromatic flavour, and if mignonette is abundant in your neighbourhood it will account for it. It is not unpleasant to the taste, though some persons perhaps

might object to purchasing it. If the cottagers would hold their honey till nearer winter they would find less difficulty in disposing of it. Honey is a useful article for coughs and colds.

HERBERT S. SAUNDERS, *Blackheath.*—It is not probable that the worker-bees destroyed could have been old or incapacitated ones; there is more probability that those that met their fate were robber-bees in pursuit of their unholy calling. Many thanks for 'Echo.'

E. J. BURKETT.—*Ripe and Unripe Honey.*—You may conclude that sealed honey is ripe. Extracted honey frequently is liquid and watery, and requires time and heat to allow it to gain a proper consistency. 2. *Sections and Supers.*—Supers are receptacles for honey placed above the hive, and may be composed of sections of wood, or other material. Sections may be worked above, behind, or within the hive. 3. *Packing for Winter.* Consult indexes of previous volumes of *B. B. J.* 4. *Foul-brood.*—See reply to 'A. S. M.,' p. 162. 5. *Best Honey for Sale.*—Sealed honey fetches a better price in the market than extracted. The experienced bee-keeper can, however, obtain from his apiary a much larger quantity of honey by means of the extractor.

CORNUBIA.—1. *Clearing Frames of Bees.*—The bees can be shaken off the frames; and if they adhere to them, with a little patience they can be brushed off. 2. *Number of Frames to be used as Brood-nest in a Combination Hive.*—The number of frames should be in proportion to the strength of the stock: from ten to twelve in summer, and from six to eight in winter. 3. *Veronica* is a bee-plant that can be recommended; it should be in the garden of every bee-keeper. *Veronica rupestris* is especially to be desired. *Sections at Back.*—There is no necessity for taking sections from the back and placing them above the hive. Sections can be finished at the rear, and many bee-keepers prefer to allow them to remain there. Frequently, however, they are partially filled at the back, and then transferred to the top to be finished off.

W. BENNETT, jun.—It would appear that your swarm was what is generally termed 'a vagabond swarm.'

MRS. CONWAY, *Bideford.*—1. *Transferring.*—Any fine day would be favourable for the transferring of the inmates of the skep into the bar-frame hive. 2. *Wintering.*—We would not recommend you to take the bar-frame into your house during the winter. See that it is well wrapped up, and leave it in the open, and there is every probability that it will pass through the winter successfully.

REV. M. MACKAY, *Wragby.*—*An Unfertilised Queen.*—It may possibly be that, though the drones in your apiary are destroyed, if you are in a locality where bees are kept the young queen may be fertilised by those that may still be about. If that does not occur there is no remedy except the purchase of a queen or uniting.

Q. Q. Q.—1. *Driving.*—It would not in driving bees be desirable to put a sheet of excluder-zinc in the bottom of the upper skep. Bees, when being driven, are similar to the inmates of a beleaguered city; and when the rush upwards takes place they are in an excited state. The interposition of the excluder-zinc would create a panic, and would result in the death of many of the bees. Probably, too, the queen would be injured in her frantic endeavours to get through the holes in the zinc. 2. *Drones.*—Drones enter other hives and remain there without being molested. 3. *Entrances.*—If you are desirous of using perforated zinc in winter, cut out sufficient to allow the entrance of two bees. 4. *Stone-flags under Hives.*—These would answer the purpose very well; let them be slightly sloped so that the water may run off. 5. *Double and Single-walled Hives.*—We consider double-walled hives better both for summer and winter use. Many bee-keepers have, however, found single-walled hives very serviceable, and of course they are much cheaper. 6. *Glass in Hives.*—We object to glass in hives, as, if the glass is not perfectly darkened, the bees, struggling to make an exit in that direction, frequently die in large numbers. 7. *Water for Bees.*—Water is necessary for bees, and should be provided for them. 8. *Moveable Floor-boards.*—Moveable floor-boards are not absolutely necessary: they are desirable in Woodbury hives, but for larger hives fixed floor-boards are preferable.

WALTER SPURRELL, *Carmarthen.*—*Indolent Bees.*—Perhaps the queen at the head of the stock is growing old and infirm, and hence the indolence of the bees; or possibly the hive is queenless. If either of these is the case, the remedy is, either to unite with another stock or to acquire a young and vigorous queen.

C. STUBBINS, *Stamford.*—As replies to your questions would cover the whole subject of bee-keeping, we would recommend you to obtain a copy of *Modern Bee-keeping*, and carefully study its teachings.

J. CHURCHILL.—The flowers forwarded were so crushed that we cannot tell with certainty what they are, and therefore are unable to say whether they are of value to bees. The best test would be to watch them on a sunny day, and if the flowers have plenty of pollen and honey the bees will be sure to find them out, especially at this season, when honey is scarce. The flower, in colour and appearance, resembles *Lysimachia vulgaris*, or common Loose Strife, which attains a height of three feet, and flowers from July to September.

F. JELLICO.—There need be no hesitancy respecting transferring with the pleasant weather we are now enjoying. Old comb is preferable to new for bees to winter in. We would recommend that the comb containing brood be transferred to the new hives; that is, if there is no special objection to utilising the old comb.

J. SHADWELL.—The experience contained in Mr. Meadows' letter (p. 153) would be of great service in enabling you to prepare the hive you purpose to take to Canada.

CANADA OR NEW ZEALAND: which is the best country for a bee-keeper to emigrate to?—As Sir Roger de Coverley sagely remarked, 'Much may be said on both sides.' We give on page 152 an account of one of the large apiaries of Mr. D. A. Jones of Ontario, Canada. From it we may deduce that the natural resources of the country must be very great, and that the demand for honey is well assured. We feel convinced that New Zealand as a honey-producing country has a great future before it. The country is suitable for bee-keeping; its flora is abundant and varied; and its climate is mild and equable. It has been found that New Zealand is not liable to the fluctuations in the honey season experienced in other countries. A very excellent guide to bee-keeping in New Zealand has been compiled by Mr. I. Hopkins, and the same gentleman has issued the first number of the *New Zealand and Australian Bee Journal* (see page 149).

J. DANN, *Wisbech.*—*Bees on Market days.*—We do not think that the bees are much injured by their visits to the rock-stalls on market days; but we are of opinion that sad results would follow if your suggestion of confining the bees to their hives on these days were carried into effect.

J. M.—*Persian Clover.*—We have referred your inquiry respecting this plant to Mr. Ingram.

G. ST. JOHN.—We have not succeeded in ascertaining the address of 'An Old Subscriber.'

WORCESTERSHIRE BEE-KEEPERS' ASSOCIATION.—Bee-Tent Engagement. Sept. 13, Chipping Campden Horticultural Show.

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FOR SALE.—Honey in Sections, very white; also Extracted, gathered by Swarms of this year, 1*s.* 6*d.* and 1*s.* 2*d.* per lb. Address Rev. R. L. LOWE, Bradeley Vicarage, Stafford. A 19

FOR SALE, cheap.—Ten Stocks of Bees in very superior Hives, with winter covers: Three Stewartons, Two Baldwin's, Two Neighbour's, and other Bar-frames. Extractor, and other appliances. Address Mrs. AKERS, Tring, Herts. A 20

BEES, Hybrids, very strong, healthy Stocks, with young Queens, in Bar-frame Hives, 25*s.* each; also Pure Run Honey. Mrs. HOLLEY, Sherfield, Basingstoke. A 21

CHANGE OF ADDRESS.—Mr. C. BROWN, Expert to the Worcestershire Bee-keepers' Association, has moved from Dudley to Elm Cottage, Bewdley (Worc.) 41

FOR SALE, very cheap, Eight Stocks in superior Bar-frame Hives, double walls, for Doubling or Sections. Each Hive averages ten frames (14 by 8), metal ends, with dummies, queen excluders, hinged roofs, locks and keys, reversible floor-boards, section frames, crates for twenty-one 1 lb. sections (all new 1882–3), together with 'Little Wonder' Extractor, quite new; two smokers, frame-box, uncapping knife, two veils, 200 sections, two dozen frames, 4 lbs. of foundation, &c. £14 the lot, or separate. Address Mr. COPPINO, Railway St., New Brompton, Chatham. 1244

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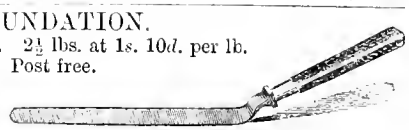

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THE BEST BEE FEEDER for Autumn use is BUTT'S NEW FEEDER, made of White Stone China, the merits of which were fully described by the Editor of this *Journal* in the issue of June 1st, p. 43. Among other advantages, this Feeder is so constructed as to admit of the Bees feeding readily, and with perfect safety; and the loss of heat to the Hive (a fault common to many Bee Feeders) is entirely obviated. Being made of white ware it can be more easily cleaned than either zinc or tin, and keep the food sweeter and fresher, and cannot rust. This Feeder has been tried by many experienced Bee-keepers and Experts and pronounced perfect. Sent post free to any address for 3*s.* 6*d.* Trade price on application. EDWARD J. BUTT, Manufacturer of Bar-frame Hives and Apiarian Appliances, Scotland House, Barnstaple. (42)

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Questions on Bees and their Management answered by return of Post, 3*d.* Stamps. 'Modern Bee-keeping,' 7*d.* 'Bee-keepers' Guide,' by T. W. Cowan, Esq., 1*s.* 8*d.* post free. ILLUSTRATED CATALOGUE and PRICE LIST will shortly be ready, 2*d.* Stamps. Send 1*d.* Stamp for Price List.

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THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

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Editorial, Notices, &c.

MR. NEIGHBOUR'S APIARY AT BUNCEFIELD, HEMEL HEMPSTEAD, HERTS.

For many years Mr. Neighbour's well-known apiary had been situated at West End, Hampstead, and this in its day had done good service. But Time, and the encroachments of railways and builders, have deprived this place of that quietude and rurality which are so essential to the well-being of bees and bee-keepers. He has, therefore, been obliged to seek some more sequestered nook, removed from 'the noise and stir and strife' of the Great City. Looking around on the environs of London for a suitable place for his purpose, Mr. Neighbour has selected a spot in a quiet agricultural district, far from 'the madding crowd,' where he trusts to be able to carry on his business as a provider of swarms and a purveyor of honey.

Having had for some time a great desire to inspect Mr. Neighbour's apiary, through his kind permission, on Saturday, September 2, we had the opportunity of gratifying it. The apiary is situated at Buncefield, about four miles from Boxmoor, on the North-western line. The drive from Boxmoor was very pleasant, through a smiling agricultural district diversified with hill and dale. On our way we passed Hemel Hempstead, nested among some low hills, obtaining a glimpse of its church, its hall, its chapels, and its modest post-office. Then our course lay through a series of rustic lanes, which, we are rejoiced to say, are still to be found in some retired parts of our country.

The Buncefield Apiary is on a small estate about three acres in extent. It has a house on the grounds, which is tenanted by Mr. Marshall, the intelligent manager of the apiary. A room in the house is devoted to melting wax and making comb-foundations by the aid of one of Root's large machines. There is also convenience for making and repairing the hives in use in the apiary. We believe Mr. Neighbour's factory for hive-making is in London. Our first view of the apiary was from an upper window of the house, and it strikingly reminded us of the pictures we had seen of some of the Californian bee-ranches. There were about seventy hives ranged in precise rows, having a large bee-house in the rear, which we afterwards ascertained was not used for housing bees, but as a receptacle for bee-appliances. The hives were of all sizes, shapes, and nationalities; Langstroths, Bogenstulpers, single and double-walled hives, Woodburys, twin-hives, skeps, &c., all had their representatives there. Throughout the English-made hives the Standard frame had been adopted. The hives were quilted and for the most part chaff-bagged. There was a distance of fifteen feet between the rows, and the hives were placed five feet apart from each other. The ground on which the hives were was strewn with tan to prevent the growth of weeds.

This being only the second season, and the place being previously a rough ploughed field, it had not attained the perfectness that it will in time to come. Since Mr. Neighbour's establishment there his business had been very brisk, and there had been a constant strain on his exertions; but soon the apiary will yield to the pains bestowed on it, and will present an ideal for all bee-keepers.

The season was late when our visit was paid, and the majority of the bee-flowers were passed and gone. Great praise was given to Limnanthes and Arabis, especially the former, which while in flower had been thronged by bees from 'morn to dewy eve.' We had the pleasure of seeing in full flower the Canada balsam, its faint tint giving a pleasing autumnal tone to the apiary; the humble-bees appeared to be very partial to it. We were informed that it was only visited by the bees towards the evening. The borage was still in flower, and the Veronica rupestris was yet flourishing: Mr. Marshall spoke of this latter plant in the highest terms of commendation. We were disappointed in not seeing any bees about; we had hoped to hear the 'drowsy concert of innumerous wings;' but the day was sombre and overcast, and the bees felt that their duty was to remain indoors. We were, that day, on the margin of a predicted storm; had the bees an intuitive forecast of its approach, or had the word passed from hive to hive, 'No sunshine—no honey?' As the bees would not come to us, we were obliged to go to the bees. Mr. Marshall opened several of the hives—Ligurians, Carniolans, hybrids, and others. We found them all tractable and good-tempered. He used no veil, and his mode of handling the bees was evidence of his ability as a bee-master. He made good use of his smoker, which belched forth such Vesuvian clouds that we were not surprised at the bees showing only their hind legs. We inquired the nature of the fuel employed, and were told that it was fustian, which at no remote time had covered the nethers of some boys in Warwickshire.

We were much interested with Mr. Marshall's mode of making nucleus swarms and of wintering queens. These operations were performed in a kind of queen nursery, octagonal in shape, each corner of the octagon being a separate home for a queen and her attend-

ants, and each having a tunnelled entrance to their diminutive hive. We inquired of Mr. Marshall his mode of introducing queens. He informed us that it was his practice, having marked the hives on which he intended operating, to visit them early in the morning, and remove the queens therefrom; and in the evening, when they had become aware of their loss, to inject some chloroform, sufficient slightly to stupefy them, and then to introduce the new queen—a plan which had generally proved successful in his hands. Mr. Marshall had not reaped much of a honey harvest during the season; his attention having been chiefly directed to obtain the numerous swarms which had been required both for home and abroad. The honey which had been produced was of an excellent quality, and gave evidence of the capability of the apiary of producing it in large quantities. The surroundings comprised fruit-trees of all kinds, lime-trees, fields of clover, &c.

We omitted to state that the feeders on the tops of the hives were of several kinds, chiefly the tin-box feeder. The food given to the bees had been made of raw sugar; but Mr. Neighbour is of opinion that loaf-sugar is preferable, and he informed us that he intended to use it in the preparation of his stocks for wintering.

We had after our inspection a lengthened conversation with Mr. Marshall on bee-matters, and found that we were able to 'extract' much information from his practical experience. We were much gratified with our visit, and with the courtesy and kind attention accorded to us by Mr. Neighbour and Mr. Marshall.—G. H., *Ealing*.

USEFUL HINTS.

Approach of Winter.—The season of natural rest is fast coming on; our favourites in skeps are very quiet, scarcely a bee moving, you may imagine them empty by external appearances, while others, taking food, are in the height of activity; we may well profit by this, there is no natural supply, consequently the bees are quiet, conserving their energy till spring. The days have been warm, consequently the cold has not kept them in; no, it is natural they should be quiet, let us not disturb them. Those that are active storing syrup, comb-building, fanning at night as if it was May to evaporate the moisture, will assuredly die by thousands after Christmas, through exhausted constitutions; we must allow for this by seeing they are doubly strong now, as they are going into winter quarters.

Removing Combs.—Bar-frame hives that have sufficient food and bees should have all combs that the bees do not cover removed at once, the dummies closed up, and cork cushions placed behind, and well covered on top with an extra quilt or two. Should any of them have the greater portion of their store on outside combs, and not sufficient to last them through winter on the centre ones, you may uncap the outside combs and place them outside dummies, allowing a passage underneath the dummies, and you will find all will soon be carried more towards the centre of hive, when the empty combs can be withdrawn.

Driven Bees. — Driven bees in bar-frame hives supplied with old combs should be fed as rapidly as possible, until they have sufficient; when ripened, if the supply is stopped, the store will be carried into its proper place, in the top cells of each bar and sealed over; crowd your bees, the mortality will thin them later on. If supplied with foundation to work out and fill, they will only work out as much as is required to take the amount of store you give them—*carefully note this*. If you want them to build out the cells, you must give them more food than they require for winter use, and extract the surplus later on. This gives the bees empty cells, into which they will crawl in cold weather. If left with full sheets of stored food they will most probably perish—we have known many do so. The combs will also require careful attention to get them built regularly; in some places they will be drawn out deep, before sealed, with a corresponding thin sheet opposite: we remedy this by carefully shaving down to proper thickness, and either placing the sides thus treated next the dummies till sealed, or placing two of them face to face when they are cleaned off and sealed over straight and smooth by the bees. In this way combs can be built out to be nicely interchangeable, with the extra advantage of being right for breeding purposes in spring. Driven bees require careful treatment to be a success, but when properly treated form the best of stocks the following year.

Floor for Hives.—Apiaries, if neglected, should have a solid floor made to them while the fine weather lasts, so that snow may be swept clear in winter. It will repay you not only in tidiness, but in the saving of bee-life after a snow-storm, when the light attracts many out for a flight, and they alight on the snow in front of the hives only to perish: whereas, if the snow is swept away, and they have a solid dry place to alight on, they recover themselves and crawl into their hives.

Uniting.—Uniting can be facilitated by removing the hives close together by degrees a little each fine day, and feeding both with scented syrup, when both lots of frames and bees can be placed into one hive, having destroyed one queen, without the bees apparently knowing of the change. All weak stocks should be united at once, all stocks should be fed up to their required weight *within the next week at the latest*, and cushions and cork-dust, &c., should be got ready for winter packing.

FEEDING BEES.

(A paper read before a District Branch of the Buckinghamshire B. K. A.)

In offering you a few remarks upon this interesting subject, I do not pretend to give anything exhaustive, but rather a few practical suggestions, which are the result mainly of my own observations.

Before stating what seems to me the best method of feeding, let me call your attention to the extreme importance of a knowledge of this art.

Of course the great object of bee-keeping is the collection of surplus stores of honey. To accomplish this end it is necessary to have *strong colonies* of bees *ready* to seize every opportunity afforded by our fickle climate, of issuing forth in all their strength to gather the precious nectar. In this lies the secret of successful bee-keeping—it is the same with the busy bees as it is with men—success is dependent upon power and readiness to make the most of every opportunity.

Now in order to have strong colonies ready for work, a knowledge of feeding is indispensable. With stocks, feeding will keep bees alive through the winter which otherwise would die; and when the spring comes, judicious feeding will cause the queen to commence breeding earlier than she would without; and thus, when the honey season comes in, the bee-keeper will have strong stocks of bees ready to commence gathering honey at once. And with swarms, especially when swarming is succeeded by a period of wet weather, it is feeding alone that will keep up the life and strength of the new colony. A bee-keeper is a general, whose soldiers are his bees; and we know that a thing of first importance to every army is its commissariat; every great general has been a good caterer for his men. Wellington said that if he knew anything at all he knew how to feed an army; and so it is with every successful bee-keeper—if he knows anything at all, he must know how to feed his bees.

There are three seasons of the year in which bees may be fed,—spring, summer, and autumn. We may consider each of these separately.

1st. *Spring Feeding.*—The object of feeding in spring is to induce breeding and to preserve the lives of the

bees when stores are running short. Should the hive be short of honey, feeding should be commenced as soon as the bees fly freely, and the food given should be liquid. The following receipt will be found thoroughly good, —10 lbs. of white lump sugar, 7 pints of water, 1 oz. of vinegar, and 1 oz. of salt; the mixture must be boiled for a few minutes. In administering the syrup great care is necessary. The two things to be borne in mind are to make the supply gentle and continuous, and to take care not to attract the bees from other hives. If the supply is gentle and continuous, the feeding is stimulative, for it teaches the bees to believe in a regular income, and disposes them to breed and increase accordingly; while rapid and irregular supplies produce, in the one case, the filling of the cells with liquid which prevents breeding, and sometimes causes dysentery; and in the other case, spasmodic excitement with robbery and consequent loss of life. Now to secure this important point I would recommend the use of 'Blow's Feeder.' It is by far the best feeder I have yet seen, and its great excellency is that by means of it you can regulate the supply from the smallest possible quantity. The other point to be guarded against, viz. attracting robber bees, can be done by the use of 'Blow's Feeder' and the exercise of general care. If syrup be spilt about the hive, or the method of feeding be such that the food can be obtained from without as well as from within the hive, the inevitable result will be that the smell will attract other bees, and then woe to your stock if it be a weak one! A single day has often been enough to injure a stock to such an extent that the bees being weakened and thinned in numbers lose heart, become disorganized, and, unless prompt remedies are applied, the stock is lost and nothing left save dead bees and broken comb. Only a short time ago a bee-keeping friend came to me with a piteous tale. He had lost two good stocks through robbers, in one of them not a bee remained alive except the queen, and the sole occasion of the attack was his having foolishly fed his bees outside the hive instead of inside. You may be sure he never repeated that error. A very little thing will start bees robbing; a comb of honey carelessly exposed near the hives, or a forgotten mug of syrup will soon set the whole apiary in such a state of excitement and uproar that it will prove anything but an easy task to quell it. When bees do take to bad courses they do it with a vengeance, they are alike energetic in good or evil. It is well, therefore, in feeding them not to lead them into temptation.

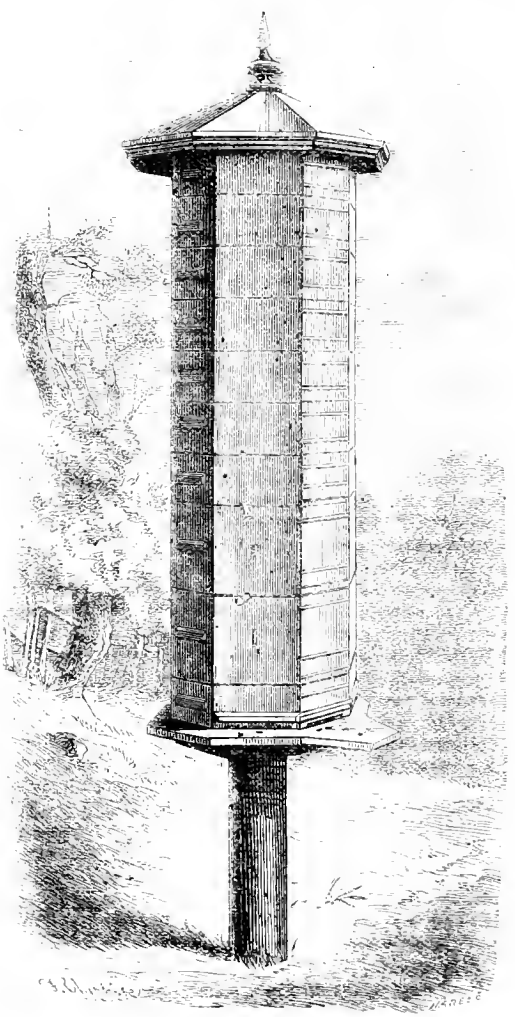
2nd. *Summer Feeding.*—Summer feeding is principally concerned with swarms. If the weather that follows swarming is cold and rainy, the young colony ought to be fed, or else the food they have with them will be exhausted and starvation ensue. But the daily supply should be limited to half-a-pint of syrup. Also, whenever there is a check in the flow of honey and the bees cannot obtain food from without, it is wise to give them syrup, both to prevent reduction of the stored up honey, and to continue the breeding of young bees. Sometimes, again, syrup is given for the purpose of making comb, it being much cheaper to have comb made out of syrup than out of honey.

3rd. *Autumn Feeding.*—This must be all over by the end of October. After the honey harvest is all gathered in, the bees are sometimes kept breeding by the use of stimulative feeding, but this must be discontinued at the approach of winter and the stocks fed up as fast as possible with syrup of much thicker consistency than that used for stimulative feeding. The same receipt, however, will do, with the alteration of five parts of water instead of seven.

With respect to spring feeding there is one addition that may be made with advantage. If pea-meal mixed with chaff be placed in a sunny corner sheltered from the wind, and a little honey put with it to attract the bees, it will answer the purpose of pollen, and cause the bees to breed faster.—W. Sturdy, *Thornton.*

BEE-STINGS AND BEE-CULTURE.

So much inconvenience sometimes arises from the unfortunate propensity bees have to use their stings, and the ignorant manner in which they are handled, that it is very desirable to consider, before a special form of hive is recommended or adopted, what accommodation the person intending to keep bees possesses, and whether the bees can occupy a spot some distance from the house, or whether, as is sometimes the case, they must be placed near the front door. As the extractor has been constantly at work with me this year, the bees, of course, at times have been furious, so that several persons, including my own children, have been stung severely, and though I have escaped, the sufferings of others have caused me considerable annoyance. Going into a neighbour's garden, a young lady bee-keeper asked me to visit her hives. There was a Stewarton, with a plain wooden



The Stewarton Hive.*

cover of the ordinary roof-like shape on which oil-cloth had been nailed. The bees were as quiet as could be wished, though the hive was in the flower-garden, close to the house. They had filled a large honey-box, and were fast filling another. They had sent out a swarm, and these were shown me by my lady friend, as she quietly but courageously turned up the skep in which

* We desire to express our thanks to the Rev. E. Bartrum for his kind permission to make use of the above engraving.

they had been put. The honey-box and the good manners of the bees had made all the household their friends.

The results of their labours, however, could not be compared with another instance of what the Stewarton has done this year in a different neighbourhood, and under the care of one of our most eminent bee-masters. At the end of June this stock had become so strong that they had filled three body-boxes and four honey-boxes! That is, the hive must have weighed over 100 lbs! So rapidly did the numbers increase, that they sent out a swarm, so enormous in numbers that two large Pettigrew skeps were not sufficient to hold them all, and consequently they were returned to the Stewarton. For myself, I trust that this hive, enabling us, as it does, to obtain large harvests in a particular way, will not be allowed to die out. Those who don't care to extract or to meddle much with their bees may find it very useful, as its powers of construction and expansion give it infinite advantages over the straw skep, though it cannot of course be compared with the bar-framed hive for advanced bee-keeping. Something, however, might, in my opinion, be done to improve its present form, and it seems a pity that Mr. Allan, of Stewarton, N.B., who is almost the only maker of this hive, does not add a few improvements. The one he exhibited under Mr. Blow's name at Knightsbridge had no frames, and, I think, no provision for foundation-comb at either end. Content with four frames in the centre, he had left the sides to shift for themselves. The cover was a grand piece of work, but far too grand for ordinary mortals.

A plain cheap top should always be sent out with the body and honey-boxes, but I doubt whether it ever is. The outside boxes which some recommend do not seem necessary, though special protection in very severe weather—such as might be given by means of hay or straw bands—should certainly be added. For persons, then, who don't care to irritate their bees by extracting, or by constantly removing sections, while at the same time they like, or are compelled, to have their little friends close at hand, the Stewarton seems to me a very serviceable hive, and I hope it will continue to have a place of its own in the bee kingdom, just as the straw-skep and the bar-framed hive.—A Country Parson.

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

A Meeting of the Committee was held at 105 Jermyn Street, on Wednesday the 12th inst. Present: Rev. G. Raynor (in the chair), Rev. E. Bartrum, J. M. Hooker, D. Stewart, W. O'B. Glennie (Treasurer), and the Rev. H. R. Peel, Hon. Sec. The Hon. Secretary reported that Statements of Accounts and Diaries relating to the Economic Apiaries Competition, which closed on August 30th, had been received from the following competitors: Mr. G. T. Melbourne (Lincolnshire), T. F. Ward (Middlesex), H. V. Edwards (Derbyshire), Rev. F. T. Scott and J. M. Hooker (Kent), R. W. Davies (Essex), K. Allen (Cambridgeshire). Resolved, that the Hon. and Rev. H. Bligh, D. Stewart, and W. A. Kirchner, be appointed a sub-committee to adjudicate in this competition. The examiners appointed to examine the candidates competing for certificates of competence in bee-management, &c., in July last, presented their report as follows:—

'Report of the Examination of Candidates for Certificates of Skill and Competence in Bee-culture management, and manipulation, held at Knightsbridge on the 7th day of July, 1883.

'Gentlemen,—We beg herewith to lay before you the classes, arranged in order of merit, of those who presented themselves for examination as experts in bee-culture and manipulation, at Knightsbridge, on Saturday the 7th day of July, 1883.

'The candidates amounted to ten in number, but seven only appeared for examination, and of these all attained the standard required. The general knowledge of the subjects was scarcely equal to that exhibited at the examination last year, with one or two notable exceptions. The subjects, however, were somewhat more extensive and difficult, in accordance with the syllabus set forth; and a little better acquaintance with the higher of these, especially the natural history of the honey-bee, its anatomy, physiology, &c., would have placed several candidates considerably higher in the list. The manipulations were beyond the average of such displays, and the lectures delivered were creditable.

'We are, gentlemen, yours obediently,
Thomas W. Cowan, F.G.S.
Edward Bartrum, M.A.
George Raynor, M.A.
Henry Bligh, M.A.

'Class I. Rev. W. E. Burkitt. Class 2. C. N. White; H. Cobb. Class 3. J. R. W. Hole; H. E. Roberts; J. Davies; A. W. Rollins.'

Resolved, That the same be accepted and published in the next issue of the *British Bee Journal*.

Wednesday, October 17th, was fixed as the date for the next quarterly meeting.

BERKSHIRE BEE-KEEPERS' ASSOCIATION.

This Society has had a busy time the last fortnight, and very pleasant and successful outings with its bee tent at the Shinfield Cottagers' Gardening Show, Sept. 6th, in Mr. Allfrey's Park. Amongst those present in the bee-tent during the delivery of the lectures by Rev. V. H. Moyle, and driving and transferring by Rev. E. Davenport, were W. J. Palmer, Esq., and the Mayor of Birmingham, Dr. Woodford, Miss Crowdy, and others. Miss Crowdy very kindly gave a bar-frame hive to the successful cottager, Miss Long, who won the prize for honey, and her bees were driven and transferred in the presence of a large and interested audience.

At Wasing Park, the residence of W. G. Mount, Esq., on Sept. 11th, at the annual meeting of the Gardening Society for the five parishes of Wasing, Midgham, Padworth, Aldermaston, and Woolhampton, the bee tent was on the ground, and the Executive of the Society represented by Rev. V. H. Moyle, and Mr. Woodley as expert. Lectures were given at intervals on different aspects of the bee-culture movement, with especial reference to the cottagers present, and improved method of bee-keeping. The Secretary of the Gardening Society, Rev. J. S. Errington, and Mr. Mount and Mr. Buer, of Aldermaston Court, evince a real interest in bee progress in this part of Berkshire.

Wokingham, Sept. 12th.—A very successful Flower, Vegetable, and Industrial Exhibition was held in the Drill Hall here to-day, and in the entrance-yard the bee tent was set up, and lecturettes given by Rev. V. H. Moyle, assisted by Mr. Woodley, as expert. The audiences at each lecture were very full, and Mr. I. Gadd, of Wokingham, local hon. sec. for Wokingham district, had an additional tent fitted up close to the bee-tent, with flowers, suitable mottoes, and texts of Scripture printed on cards and hung around the tent, and on the table a hornet's nest, humble-bee's nest with live humble-bees, various samples of his straw, flat-topped, and other hives, and many other objects of interest in apiarian work. Great credit is due to Col. Prime, who got up the exhibition.

It is interesting to note that last year the tent was taken to eight places, and some 23*l.* received for the same. This year to seventeen places, and 40*l.* realised.

DEVON AND EXETER BEE-KEEPERS' ASSOCIATION.

In addition to the exhibitions of this Association, which have been reported in previous numbers, we have further to record that on August 9th there was an apicultural exhibition at Topsham, as also manipulations by the hon. expert, Capt. Gilbert. On August 16th the tent was at Heanton Satchville (the seat of Lord Clinton), in connexion with the Huish Cottage Garden Show; and on August 18th at the St. David's (Exeter) Cottage Garden Exhibition. On August 23rd and 24th the county show was held in lovely weather in Northernhay, Exeter, in connexion with the Devon and Exeter Horticultural, Botanical, and Natural History Society. The exhibits of honey and apparatus occupied a very large tent, and collections of bee-keepers' furniture were shown by Messrs. Abbott, of Southall, Middlesex, and also by Messrs. Richards and Honey, and Mr. Moxey, both firms of Exeter. The Mayor and Sheriff of Exeter contributed handsome claret jugs as prizes; and one of these, for the largest and best harvest of comb-honey from one stock, was won by a cottager, Mr. Pickings; the other, for the best exhibition of comb-honey from one apiary, was gained by Mr. W. N. Griffin, one of the hon. secs. of the Association.

Unfortunately, many of these shows have been held in dripping weather, and the bee tent has consequently not been visited on these occasions as numerously as usual. On the whole, however, much useful work has been done by this Association during the past year, and the members are steadily increasing in number. The honey harvest in the county of Devon has been far from abundant during the season now drawing to a close.

THE OXON BEE-KEEPERS' ASSOCIATION.

This Association held its first annual show on Aug. 24th in connexion with the Banbury Horticultural Society. The weather was all that could be desired, and for a first effort the show may be considered decidedly encouraging. There were fifty entries, exactly half of which were contributed by members. The prizes were awarded by J. M. Hooker, Esq., who kindly travelled from Sevenoaks for that purpose. Mr. Hooker also assisted very much throughout the show by his experience in arranging such matters. Perhaps it will not be altogether out of place to state that the interest in bee-keeping in the county seems to be making satisfactory progress, if we may judge from the increase in members. In the first year of its existence the Association numbered only forty-eight, whereas there are now close upon eighty members.

The prizes were as follows:—

Class 1.—*Bees.*—1. For Ligurian bees—1, Mr. Baldwin; 2, Mr. T. E. Adams. 2. For black bees—1, Mr. Perry.

Class 2.—*Honey.*—1. In sections—1, Rev. W. E. Ivens; 2, Rev. F. Dillon; 3, Mr. W. Bennett. 2. In glass—1, Mrs. Fisher; 2, Mr. Payne; 3, Rev. W. E. Ivens. 3. Extracted—1, Mr. Shepherd; 2, Mrs. Cobb; 3, Mr. W. Bennett.

Class 3.—*Hives.*—1. For best hive—1, Messrs. Abbott; 2, Mr. Baldwin; 3, Mr. Walton. 2. Under 10*s.* 6*d.*—1, Mr. Baldwin; 2, Mr. Howitt; 3, Messrs. Abbott.

Class 4.—*Driving.*—1, Mr. T. E. Adams; 2, Mr. Perry.

Class 5.—*Furniture.*—1, Mr. Baldwin; 2, Mr. Abbott.

Class 6.—*Straw skep* (cottagers).—1, Weston; 2, Lambert.

WILTS BEE-KEEPERS' ASSOCIATION.

The county show of the above was held at Bowood (the beautiful seat of the Marquis of Lansdowne) on Aug. 23rd, in connexion with the annual exhibition of the Calne District Horticultural Society. Unfortunately the contributions to the prize fund were so small that the schedule was not sufficiently attractive to draw many exhibitors, and the distance from a railway station increased the difficulty, while 'athletic sports' hindered many from coming to the bee-tent. The display of honey was small, comparatively little having been produced this year in Wilts, owing to the unfavourable weather; and had it not been for the medals and certificates of B. B. K. A. the entries would have been still fewer. The quality of the honey shown was, however, very good, though sections were not so even as usual. Cottagers, as is too often the case, were conspicuous by their absence, except as skep-makers, two of whom showed flat-topped skeps at from 1*s.* 9*d.* to 3*s.*, which could hardly be surpassed. Lectures and manipulations were carried on during the day by the experts of the Association, Rev. E. Davenport and Rev. W. E. Burkitt, both of whom now hold first-class certificates from B. B. K. A.

The following is a list of the awards:—

Bees.—Class 1—For the best stock of bees of any race, to be exhibited with their queen in an Observatory hive: 1st, H. Gibbons.

Hives, &c.—Class 2—For the best Observatory hive stocked with bees and their queen: 1st, Rev. W. E. Burkitt; 2nd, H. Gibbons. Class 3—For the best bar-frame hive, complete, price not to exceed 15*s.*: 1st, J. E. Wilshire; 2nd, Rev. W. E. Burkitt; 3rd, Messrs. Abbott. Class 4—For the best bar-frame hive for cottagers' use, price 7*s.*: 1st, J. E. Wilshire. Class 5—For the best collection of bee-furniture, no two articles to be alike: 1st, Messrs. Abbott; 2nd, Rev. W. E. Burkitt. Class 6—For the best arrangement for obtaining super honey from skeps, price to be taken into consideration: 1st, Rev. W. E. Burkitt; 2nd, Messrs. Abbott. Class 9—For the best twelve 1-lb. sections of honey: 1st, H. Bevir, Esq.; 2nd, Miss E. Preston. Class 10—For the best super of honey (not being sectional) not less than 10 lbs.: 1st, Isaac Hoare. Class 11—For the best 12 lbs. of extracted honey, in 1-lb. or 2-lb. glass jars: 1st and 2nd, Rev. E. Davenport. Class 12—For the best old stock of bees in skep, which can be transferred to prize hive if desired: 1st, E. Davenport; 2nd, R. Canning. Class 18—For the best flat-topped skep: 1st, H. Huish; 2nd, G. White.

On August 29th another show was held in Monkton Park in connexion with the Chippenham Horticultural Society's Exhibition, at which the attendance was somewhat larger than at Bowood, the only cash prizes being given by the Flower Show Committee. Many new members have joined the Association during the year (in spite of the discouraging season of 1882), the greater part being 2*s.* 6*d.* subscribers. It is much to be regretted that with three or four exceptions the large landed proprietors of the county take little interest in bee-culture, although of such importance to the labouring classes; and the subscribers of more than 5*s.* per annum are very few compared with most other counties, and their donations to the prize fund are quite insufficient to enable the Association to offer an attractive schedule in this respect; and in receiving entries from cottagers, success depends very much on the efforts of the district hon. secs.

The following is a list of the awards:—

Bees.—Class 1—For the best stock of bees (with their queen) of any race in an Observatory hive: 1st, E. M. Hart and Co.; 2nd, Rev. W. E. Burkitt.

Hives.—Class 2—For the best Observatory hive stocked with bees: 1st, H. Gibbons. Class 3—For the best bar-frame hive, complete, not to exceed 15*s.* in price: 1st, E. M. Hart and Co.; 2nd, E. Day. Class 4—For the best bar-frame hive for cottagers' use, price not to exceed 7*s.*: 1st, J. E. Wilshire; 2nd, E. M. Hart and Co. Class 5—For the best arrangement for obtaining super honey from skeps: 1st, Rev. W. E. Burkitt; 2nd,

Messrs. Abbott. Class 6—For any new invention: 1st and 2nd, E. M. Hart and Co.

Honey.—Class 8—For the best 12 lbs. of honey in 1-lb. and 2-lb. sections: 1st, A. G. Radcliffe; 2nd, Miss E. Preston. Class 9—For the best single super of honey not less than 6 lbs.: 1st, Isaac Hoare. Class 10—For the best 12 lbs. of run or extracted honey in 1-lb. or 2-lb. glass jars: 1st and 2nd, Rev. E. Davenport. Class 11—For the best old stock of bees in a skep, which can be transferred to prize hive if desired: 1st, Rev. W. E. Burkitt; 2nd, T. Crew.

Driving Competition.—Class 12—For the competitor who shall, in the neatest, quickest, and most complete manner, drive out the bees from a straw skep, and exhibit the queen: 1st, Rev. E. Davenport; 2nd, E. Hart.

Cottagers only.—Class 13—For the best exhibition of honey in the comb, not less than 6 lbs.: 1st, T. Crew: 2nd, R. Pearce. Class 14—Nor the best 6 lbs. of run honey: 1st, T. Crew. Class 15—For the best flat-topped skep, with feed-hole, super, and floor-board: 1st, H. Huish; 2nd, G. White.

DORSETSHIRE BEE-KEEPERS' ASSOCIATION:

Yeovil Horticultural Society.

The annual meeting of this Society was held at Yeovil in connexion with the Horticultural Society.

Part of the fruit tent was occupied by hives, honey, bees in observatories, &c., the exhibits occupying about seventy feet of staging. Considering that only ten prizes were offered, and those of small value, the display was excellent. The exhibitors included Messrs. Abbott Bros., of Southall; Messrs. E. M. Hart and Co., the Longstock Apiaries, Stockbridge; Mr. E. J. Butt, of Barnstaple; and other well-known hive-makers and bee-masters, who sent a large assortment of bee-keeping appliances, ranging from expensive hives, of the most elaborate description, to cheap and simple queen-cages. The competition for hives, however, was confined to those not exceeding in value 15*s.* and 10*s.* respectively. There was a really good cheap hive in the show fit for any weather, stocked with bar-frames of the most approved make, each frame having a wax guide; indeed, it was a model hive for cottagers, and was offered at 7*s.* The one to which the first prize was awarded in the 15*s.* class had double walls, dummy, quilt, chaff cushion, entrance slides, legs, high roof, was fitted with bar-frames, started with comb-foundation, and resting on galvanised iron-runners; and the outside was stained a useful colour. It was sold readily, and orders were at once booked from it, several bee-keepers expressing their surprise that it could be made for the money. The second prize hives in the same class were still lower in price, and had several noteworthy features. The observatories excited much interest.

The show of honey was far better than had been anticipated, as the season had not been favourable for bee-keepers. Mr. J. Antell, of Puddletown, near Dorchester, took the lead in both classes. His piles of one-pound sections were beautifully straight and clean, as well as numerous; while his run-honey was of first-class quality, and had been put up in handy bottles of clear glass with great care. Messrs. Abbott and Messrs. Hart also sent large cases of bottled honey from their extensive apiaries; and Mr. W. Pavitt, of Barwick, sent nearly a hundredweight, run and in comb. It will be readily understood, therefore, that the neighbourhood of Yeovil is very suitable for apicultural pursuits. It should be mentioned that the honey was set off with dozens of vases of bee-flowers, such as borage, mignonette, heather, &c.

Mr. C. Tite, Yeovil, was the judge; and the following are his awards:—

Observatory hive, stocked with living bees—1st, Mr. J. Antell, Puddletown, Dorchester; 2nd, Messrs. Abbott Bros., Southall. Best bar-framed hive, price not to exceed 15*s.*—Equal firsts, Messrs. Abbott and Mr. J. E. Wilshere, of Semington, near Trowbridge; 2nd, Messrs. Hart, Longstock, near Stockbridge. Best bar-framed hive, price not to exceed 10*s.*—1st, Mr. Wilshere; equal seconds, Messrs. Abbott Bros. and Mr. J. H. Howard, of Holme, near Peterborough. Best exhibition of run-honey—1st, Mr. Antell; equal seconds, Messrs. Abbott Bros. and Messrs. E. M. Hart and Co. Best exhibition of super honey—1st, Mr. Antell; 2nd, Mr. W. Pavitt, Barwick, Yeovil.

Wareham Flower Show.

At the fourth annual exhibition of the Wareham Horticultural Society, held in the Cricket Ground on Thursday, August 30, there was a bee-tent under the auspices of the Dorset Bee-keepers' Association. Prizes were awarded for the best straw skeps of bees grown by cottagers, and there were seven entries, the judges being the Hon. Sec. of the Dorset Bee-keepers' Association (Mr. Dunman) and the expert of the Association (Mr. Alsford). The prizes consisted of improved bar-framed hives, from which the bees were transferred by the expert during the afternoon.

Sherborne Flower Show.

The Dorset Bee-keepers' Association held an exhibition in connexion with the Sherborne Flower Show on August 29. It was an interesting and attractive affair, and was very well patronised. Several hives were exhibited by Mr. Wm. Cuff, of Whitchurch, near Blandford. There were two prizes offered for the largest and best exhibition of bee appliances by local depôt holders or manufacturers. These were won by Mr. J. J. Alsford and Mr. C. W. Downes, of Blandford, who sent sufficient goods to stock an ordinary shop. The honey prizes in the open classes were won by Mr. W. H. Dunman, jun., Mr. C. W. Downes, and Mr. R. Slade, of Puddletown. In the cottagers' class, Mr. W. Pavitt, of Barwick, near Yeovil, took the lead with the fine lot of sections and run honey that secured him a prize at Yeovil. Mr. J. Alsford, of Blandford, who acts as expert to the Association, conducted the manipulations with living bees, which were duly explained by the Rev. L. Stanton, of Combe Keynes, Mr. Dunman, and others.

Blandford Horticultural Show.

The Dorsetshire Bee-keepers' Association held their annual exhibition in connexion with the flower show, on Friday, August 24th, and it was a most complete success, thanks to the well-known enthusiasm and indefatigable exertions of the Honorary Secretary, Mr. W. H. Dunman, jun., of Troytown, Dorchester. The entries were more numerous than on any former occasion, while the quality of the exhibits left nothing to be desired. Two large tents were filled with hives, honey, &c., and a third was set apart for the manipulation with living bees. Taken as a whole, the show was probably the best ever held in the West of England. The entries of Messrs. Abbott Bros., of the School of Apiculture, Southall; Messrs. G. Neighbour & Sons, London; Messrs. E. M. Hart & Co., Longstock Apiaries, Stockbridge; Messrs. Honey & Richards, Exeter; and other well-known hive-makers, were numerous, and contained almost every article a bee-keeper could possible require, and at prices to suit all classes of customers. Mr. J. Alsford, of Blandford, who acts as expert to the Dorset Association, and Mr. C. W. Downes, of Blandford, each had a large stand of goods. There was a splendid show of honey, and nothing better could have been wished for than the grand array of sectional supers shown by Mr. S. Pond, of Blandford; Mr. W. H. Dunman, jun., Mr. J. Antell, and Mr. T. Stickland, of Puddletown; and other leading exhibitors. The prizes were handed to the successful exhibitors by Sir Talbot Baker, who delivered

an admirable address on ancient and modern bee-keeping.

The Judges were:—Hives: The Rev. H. Everett, Dorchester; Mr. C. Tite, Yeovil; the Rev. N. W. Gresley, Milborne St. Andrew; Mr. T. Stickland, Puddletown. Honey: the Rev. G. H. Dixon, Linkerbolt Rectory, Hungerford; Mr. W. R. Vatcher, Dorchester; and Mr. J. F. Hussey, Dorchester. Driving competition: The Rev. L. Stanton, Combe Keynes, Wareham; and Mr. T. Stickland. The awards were made as under:—

Bees and Bee Furniture.—Open Class.—For the best Observatory hive: 1, Messrs. Honey and Richards, Exeter; 2, Messrs. E. M. Hart & Co., Longstock, Stockbridge; extra, Mr. J. Forrester, Bryanstone, Blandford. For the largest and best collection of hives and bee furniture: 1, Messrs. Abbott, Southall; 2, Messrs. E. M. Hart & Co. For the best moveable-comb hive: 1, Mr. H. Moxey, Exeter; 2, Mr. W. Cuff, Whitechurch, Blandford. For the best and cheapest hive on the moveable-comb principle, for cottagers' use, 10*s.* 6*d.*: 1, Messrs. Dines & Son, Malden, Essex; 2, Messrs. E. M. Hart & Co. For the neatest and best rack, containing 1-lb. or 2-lb. sections: 1, Messrs. Abbott Bros.; 2, Mr. H. Moxey; 3, Messrs. E. M. Hart & Co.; extra, Mr. W. Cuff. For the best crate: 1, Mr. H. Moxey; 2, Messrs. Abbott Bros. For the best skep, price not to exceed 10*s.*: 1, Mr. T. Sells, Uffington, Stamford, Lincolnshire; 2, Mr. C. W. Downes, Blandford. For the best and cheapest honey extractor: equal, Messrs. Abbott Bros. and Mr. H. V. Edwards, Mackworth, Derbyshire.

Honey.—Local classes.—For the best exhibition of super honey from one apiary: 1, Mr. S. Pond, Blandford; 2, Mr. W. H. Dunman, jun., Troytown, Dorchester; 3, Mr. J. Antell, Puddletown, Dorchester. For the best super of honey, not being sectional: 1, Rev. H. Everett, Dorchester; 2, Mr. E. Reeks, Cussage, Wimborne. For the best 24 1-lb. sections of comb-honey: 1, Mr. W. H. Dunman, jun.; 2, Mr. R. Slade, Puddletown; 3, Rev. G. H. Wynne, Whitechurch, Blandford. For the best 24 2-lb. sections of comb-honey: no entry. For the best 12 1-lb. sections of comb-honey: 1, Mr. E. Reeks; 2, Mr. Lampard, Spettisbury, Blandford. For the best 12 2-lb. sections of comb-honey: Mr. W. H. Dunman, jun. For the best 48 lbs. of run or extracted honey: 1, Mr. T. Stickland, Puddletown; 2, Mr. W. H. Dunman, jun. For the best 12 lbs. of run or extracted honey: 1, Mr. J. Anstell; 2, Rev. N. W. Gresley.

Driving Competition.—1, Mr. J. Alsford, time, 10 minutes; 2, James Woodland, Troytown; 3, James Bealing, Stockhill, Gillingham.

Cottagers' Class.—For the largest and best exhibition of honey in the comb, taken without destroying the bees: 1, Mr. W. Horlock, Pimperne, Blandford. For the best super of honey: 1, Mr. J. Sherring, Puddletown. For the best 12 1-lb. or 2-lb. sections of comb-honey: 1, Mr. James Woodland, Troytown, Dorchester. For the best 24 lbs. of run or extracted honey: 1, Mr. H. Hutchings, Moreton, Dorchester.

CARMARTHENSHIRE BEE-KEEPERS' ASSOCIATION.

The first annual exhibition of bees, honey, hives, and bee-keeping appliances, and practical manipulations of this Association was held in Dynevor Park, Llandilo, on the 5th and 6th September. The magnificent mansion of the Right Hon. Lord Dynevor and the grounds adjoining were thrown open on those days for the purpose of holding a grand bazaar to raise funds for the repairing of the Llandilo Parish Church. His Lordship most generously permitted the exhibition to be held in grounds adjoining. The exhibition of appliances, which was held in a large marquee, may safely be called the largest ever held in Wales. A very fine stock of Ligurian bees was exhibited in an observatory hive by Mr. T. B. Blow, of Welwyn. The queen was examined with great interest for the first time by many who had previously even doubted her existence. Sir James Drummond, Bart., Edwinsford, also exhibited a stock of black bees in Neighbour's cottage hive. The various classes for hives were well filled, and the exhibits good. Two very complete collections of appliances were shown by Mr. T. B. Blow and Messrs. Abbott Bros., and included all the various articles used in modern bee-keeping. The exhibition of comb-honey was indifferent. This can be accounted for by the incessant rain which has fallen ever since the second week in June. The exhibition of run honey was very creditable. Great interest was taken in the driving competition, which was open to members only; and no fewer than eight competitors put in an appearance, which can be taken as a proof that the Association has already done much towards extending humane bee-keeping in the county. The first honours were divided between Mr. E. Lees, of Venallt, and the Rev. John Lloyd, of Golden Grove, both of whom cleared their hives in less than eight minutes, and neatly secured the queen on her passage to the upper hive. One other competitor is deserving of notice, namely, Oliver Hughes, who is only twelve years of age, and is the son of Inspector Hughes, of St. Clears, who has done so much towards advancing bee-keeping in the western part of the county. He drove his stock very neatly, and was awarded a special prize. Mr. T. B. Blow acted as judge in this competition. While the competitors drove he delivered very interesting lectures on the proper management of bees.

The show, on the whole, was a decided success, though the amount of money taken for admissions was not as large as was expected. It is to be regretted that a larger number of the Committee were not in attendance to assist in explaining the various exhibits to visitors. Almost the entire work connected with the show fell upon the shoulders of the hon. secretaries, who are to be congratulated upon the success of the show.

The Judges, to whom the thanks of the Association are due, were the Rev. W. E. Burkitt, hon. sec. of the Wiltshire Association, and the Rev. J. J. Evans, of Cantreff, Brecon.

The following is a list of awards:—

Bees.—Class 1.—For the best stock of bees in observatory hive: T. B. Blow.

Hives and Appliances.—Class 2.—For the best moveable-comb hive for general use: 1, T. B. Blow; 2, L. Oswald Lewis, Llandilo; 3, Abbott Bros. Class 3.—Ditto, price not to exceed 10*s.* 6*d.*: T. B. Blow; 2, L. O. Lewis; 3, G. Stothard, Welwyn. Class 4.—Ditto, made by a member: 1, W. Beynon, St. Clears; 2, L. O. Lewis. Class 5.—For the best straw-hive, with facilities for storing comb-honey in supers: T. B. Blow. Class 6.—For the best and most complete collection of hives and bee-furniture: 1, T. B. Blow; 2, Abbott Bros.

Honey.—Classes 7 and 8.—Special prizes given by the B. B. K. A. for the best supers of comb-honey: not awarded. Class 9.—For the best exhibition of comb-honey: 1, R. R. Carver, Wenallt; 2, H. Langford, Llandilo. Class 10.—For the best exhibition of run honey: 1, W. H. Lloyd, Llandilo; 2, Rev. John Lloyd; 3, T. N. T. Strick; highly recommended, R. R. Carver.

Cottagers' Classes.—Class 11.—For the best exhibition of comb-honey: W. Beynon; 2nd and 3rd not awarded. Class 12.—For the best exhibition of run honey: W. Beynon; 2nd and 3rd not awarded. Class 13.—A bar-frame hive given by a member for the best super taken from a straw-skep: no entry.

Wax.—Class 14.—1, T. B. Blow; 2, L. O. Lewis.

Driving Competition.—Class 15.—E. Lees and the Rev. John Lloyd, 1st and 2nd divided; 3rd, T. N. T. Strick; extra prize, Oliver Hughes.

The Rev. W. E. Burkitt also exhibited (not for com-

petition) a straw skep fitted with his well-known crate of sections, and some other articles.

Several exhibits arrived too late for competition, some not reaching Llandilo until the day after the show.

OVER AND DISTRICT FLOWER SHOW.

This was our fourth annual show, and the prizes were given chiefly by Lady Charlotte S. Barry, Captain Turner, Mrs. Minis. The Cheshire Bee-keepers also gave a bronze medal and certificate. This show was open to all comers, and it is a pity that it was not more widely known. Mr. Gee, of Nantwich, acted as judge.

Mrs. Turner Over Hall took first for best bar-frame hive and super; Mr. Geo. Stocks second. Mr. Rawbottom, 1st, skep and supers; Mr. Ward, 2nd. Best Observatory stocked—1st, Mr. Stocks; 2nd, Mr. J. R. W. Hole. The Cheshire Bee-keepers' bronze medal was awarded to Mr. Stocks. Best 1-lb. sections, not less than 12 lbs., Mr. Stocks, 1st. Best 2-lb. bottles of extracted honey, Mr. Stocks, 1st; 2nd, Master G. Stocks. Wax, best 2 lbs., Mr. Stocks. Driving competition, Mr. P. Bolt.

Mr. Stocks extracted a few combs of honey from a stock of Carniolan bees, explaining the desirability of getting the honey without destroying the bees. The bars were taken out of the hive, the bees swept off, honey extracted, and bars replaced in the presence of a couple of hundred people, who stood round astonished.

BEES AT LITTLEPORT, ELY.

At the annual Fruit and Flower Show held at Littleport, Ely, on the 27th of August, I exhibited some honey—both in sections and in glass jars, clear and opaque—which created quite a lively interest in the honey and modern bee-keeping question. In the evening I gave a short address on modern bee-keeping, explaining the bar-frame hive and its advantages over the old straw skep, and I find with good results. Last week I again visited the place, and I found three different persons had started bee-keeping on the bar-hive system, two of them ladies. One had made so much progress in the art that she was going to drive some bees from cottagers' straw skeps and unite them to her own stocks. I am now in hopes modern bee-keeping will make good progress there, especially if, as I advise, they take our excellent *Journal*.—J. D., *Wisbech*.

NOTTINGHAMSHIRE BEE-KEEPERS' ASSOCIATION.

All who would like to join this Association (in connexion with the parent Association) should send their names to the Rev. A. H. Halley, Cotgrave, Notts, who has promised to act as Secretary until the Association is fully formed.

EFFECT OF A WASP STING.—An inquest was held on Aug. 17th by Mr. Lewis, the Essex coroner, on the body of Miss Anna Frances Arkwright, aged 55, at Mark Hall, near Marlow, her residence. Miss Arkwright, who was much respected in the district, died on Saturday afternoon within half-an-hour of a wasp-sting on the little finger of her right hand. She had been stung several times before, and was very nervous about it. She had made no statement as to where or how she was stung; but when her maid, in answer to the bell-ringing, went to her bed-room, she told her to look on her dress skirt and in her pocket, and the maid found a wasp in the pocket and killed it. Miss Arkwright fainted directly afterwards and never recovered consciousness. Mr. Day, a surgeon, said that death had ensued from syncope, produced from the excessive pain caused by being accidentally stung by a wasp, and a verdict to that effect was accordingly given.

Foreign.

FRANCE.

Commenting upon the Bee Show which has recently been held in Paris, the *Apiculteur* states: 'Signs were not wanting that, as far as the weather was concerned, the season had not been what bee-keepers could have wished;' still, it further points out, 'The number of exhibits was larger than on any previous occasion, as have also been the number of visitors, for the tickets sold showed that about 8000 persons had paid for their admission, and it was computed another similar number had been admitted free. As already reported, the number of prizes awarded amounted to fifty-eight. Of hives there was a good collection, comprising about fifty patterns. The honey section, both in the comb and run, was very attractive, which could hardly be said of best quality wax. The various kinds of live bees were arranged in a temporary apiary constructed in the shape of a platform, and this constituted the greatest attraction of bee-keepers. The meeting, however, which was held during the exhibition had not so many bee-masters as had been anticipated; nor were the discussions very animated, particularly so on the second day.' Upon this especial point the same journal remarks: 'This is never the case among Germans; they always appear to have studied all subjects for discussion so deeply, that as a general rule the time allowed for speaking is not sufficient to exhaust the matter. We Frenchmen, as a nation of lawyers, do not come out so well in this respect.' The Minister and Director of Agriculture had honoured the show with their presence on the 28th of July.

In Paris the honey-market has remained almost stationary for some time past. For very best lots of honey from the Gâtinais, 145 fcs. per 100 kilos. were offered, sellers to pay the carriage. At the Janville Fair only small lots were offered, and samples from the Pas-de-Calais could not find buyers. Quotations for inferior qualities were lower than before. In Paris table-honey in the comb is quoted at from 70 to 75 cents per half kilo. The wax-market is quiet. For ready lots of Gâtinais, from 310 to 315 fcs. are offered. At Marseilles, however, the arrival and sales have been large of late. It is computed that about 2000 kilos were were landed. From Havre some arrivals of Spanish and South American lots are reported, but prices remain unaltered.

ITALY.

In view of the difference of opinion which still prevails in the bee-keeping world as to whether the skep is or is not, after all, a better habitation than the bar-frame hive for bees to winter in, Signor Ferdinando di Jorio gives in the *Apicoltore* the result of the investigations he has made with a view to solve this question. He argues that, inasmuch as the wood of which the frames are made, and which enclose the cluster in winter, is naturally colder than the bees, it must absorb a certain amount of heat in order to keep level with that in the cluster, thus constituting a sort of continuous draft upon the heat which the bees constantly endeavour to keep up. His conclusion is, therefore, that those bee-keepers who work their frames without the bottom rail have removed one fourth of the points urged against the bar-frame hives.

AUSTRALIA.

I thank you for forwarding to me the April number of the *British Bee Journal*. I am only grieved that I am just now too busy, or else I should have tried to get a few more subscribers for that *Journal*. I learned a great deal out of it, although everything in it is not practicable in Victoria, because bee-keeping does not pay here as in

England. The bees in the bush have so much increased in the last few years that I fear, if they go on at the same rate a little longer, they will become a nuisance; even now they enter houses sometimes; I often receive a call to come and take away a swarm of bees, and nobody knows where they come from.

Two months ago a painter, who lives opposite my shop, had to go to the homestead of Mr. McKellar, M.P., to paint the overseer's house. When he arrived there he found a large rose-bush had covered the building, so that he could not paint one side. After he had cut down the roses, a greater difficulty arose; for as soon as the paint-brush moved along the boards, out rushed a number of bees, and he had to make his escape. What was to be done now? He sent a man on horseback to Hamilton to get some sulphur, then pulled off some boards at the bottom first and killed all the bees. When the remainder of the boards were taken away, it was found that the whole wall—7 feet long by 10 feet high—was all honey-comb, because in these wooden buildings the walls are hollow. The overseer took, I was told, more than two hundred pounds out of this wall. Honey is very nice for use, but, as I said before, it does not pay here; there is no sale for it. Many farmers do not take their honey this year because they have no time; and if they would employ somebody to do it, they often cannot get vessels to put it in. I wanted to send some to Melbourne, but the market was already full.

As for wax, the wholesale houses will only give 10*d.* per pound; that does not pay for cleaning, therefore we keep it and make candles for our own use out of it. One man sent for me to take his honey; I went, but what to do I had to consider first: not only were all the hives full, but combs, pure white as snow, built outside on all four sides, and above and below the hives right down to the soil. The same was the case in many places in the year 1868, but with me it never happens, because as soon as I notice that they want more room I give them more; but most people hive a swarm and put it down, and never look any more at it till they want to take the honey.

In the matter of swarming in Australia, the bees are different altogether than they are in my native land, Germany: I have not lost one in fifteen years, and I seldom hive them. As soon as they come out of the hive I watch where they are going to settle; as soon as I spy the spot, I put the hive there, and fix it anyhow, and in they go.

Perhaps it might interest you to know how I made my first bee-dress in Australia. Well, I took a meat-cover from wire netting, cut it in two, bent the edge of the new cut inward, and sewed it with strong twine on the lower edge of a broad-rimmed felt hat, the back of the hat and down the wire I sewed gauze, and buttoned it under the waistcoat.

At present there is little encouragement for bee-keeping here, for the bush is full of honey, and people can go and get hundreds of pounds sometimes out of one tree; they only take the honey and let the poor bees shift for themselves. As to Ligurian bees, while I should like to have some, yet our bees are very good, small swarms of only a few bees which you would unite; but we need not do that here, they soon become strong, and even bring plenty of honey. As for queen-rearing, I could not find time for it; and as regards feeding, I have fed my bees once in about ten years. The greatest trouble to me here is that in winter time they continually rob each other, and I am often perplexed how to remedy this evil; they can get plenty of food, but they will rob and quarrel with each other. But I fully believe I shall overcome this difficulty when I get better-made hives; at present most bee-hives are old tea-chests, or brandy or gin-cases. When I wanted to observe the bees, I constructed the hives of four panes of glass, fixed in wood at bottom and top, and a wooden capsule over; but they did not answer well, they are too hot in the summer; and last summer the work broke down, so I destroyed them, and the new hives I make just now are with frames 8 × 10 in the clear, about 20 ins. long, and a pane of glass at the back, that I can look in at any time.—Herman Naveau, *Hamilton, Victoria, 30 June.*

NEW ZEALAND.

Humble Bees for Matamata.—Some few months ago Mr. J. C. Firth, the proprietor of the Matamata Apiary, with his characteristic thoughtfulness for anything that will benefit his adopted country, sent an order to England for a number of nests of the humble bee (*Bombus terrestris*). By an unlucky mistake on the part of those at home, the first consignment—contrary to order—were shipped too late in the season, and, as might have been expected, the bees were found to be all dead on arrival. This is to be regretted very much, as no doubt the successful introduction and acclimatising of the humble bee would prove a great benefit to the country, inasmuch as the fertilisation of the red clover flowers might for a certainty be expected to follow, when farmers could save their own seed instead of having to import it as at present. Mr. J. C. Firth, nothing daunted by the failure, has already despatched another order home for one hundred nests, with instructions to ship them as early as possible after the bees become dormant next season, which, it is expected, will be some time in November, when they will arrive here in January next, just at the time red clover is in full blossom. Every precaution will be taken to ensue the safe arrival of the bees, and it is hoped that every one of them may live to take flight at Matamata.

Superiority of Italian Bees.—A word in favour of the Italian (Ligurian) bee. I got as much as 450½ lbs., half extracted and half comb honey, from one pure stock. I kept this hive on a scale to see how much was brought in daily. The greatest quantity gathered in one day was 19lbs. I can say that one Italian colony will will produce as much honey as two black ones.—J. Karl.

AMERICA.

From the *American Bee Journal* we learn that a number of important Shows are about to take place in various parts of the States. We are pleased that by means of our County Associations and their Shows we have indicated to our American brethren how an interest in bee-keeping may be created in various localities. The Shows which are about to take place there prove that they are desirous of profiting by our experience. They will be conducted in the same manner as those in England, giving prizes for the best display of honey, bees, and bee appliances. Among others we note the Kentucky, the Nebraska, the Illinois, the Wisconsin, and the Toledo Bee Shows. Among the prizes at the Nebraska Bee Show we see that a prize of thirty-five dollars is offered for the best colony of bees. 'The test of the colonies will be net gain, and will be weighed and sealed August 28th, and weighed again September 11th. Each colony must be the progeny of the queen on trial.'

Bee Periodicals.—During the past year two bee-papers have ceased to exist, namely, *The Bee-keepers' Instructor* and *The Bee-keepers' Exchange*. These had come to an untimely end through want of sufficient public support. Still the number of papers remains the same, as two have started during the past year, the *Apiarist* in Maine, and the *Apiculturist* in Massachusetts.

Bees in a Shop.—A Birmingham baker had a short time ago some unwelcome visitors. A swarm of bees flew into his shop, and took complete possession of the premises, covering the bread and the confectionery, scaring away most of the inmates, and causing a cessation of business for some hours.

Correspondence.

*** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

LIGURIANS *v.* BLACKS.

I have been much interested in the correspondence which has taken place in your *Journal* on this very important point—the comparative merits of the different races of bees. After very careful observation of my own and my neighbours' stocks, I have most reluctantly come to the conclusion that, whatever may be the case with other Eastern varieties, the Ligurian bee for this climate is very inferior to the native race. It is, of course, beyond dispute that the Ligurian is far more prolific, as well as more active than the black, and in their own country these qualities may be very valuable; but I believe that with our short honey season, and very unsettled climate, it is more than doubtful if they are of any advantage. The very prolific bees are so much engaged during the best of the season in rearing brood that, although they, doubtless, gather much honey, very little is *stored*, and their restlessness and activity necessitate the consumption of a large quantity of food, even at times when there is nothing coming in. I have this year several queens who have kept strong stocks so busy raising brood, that the hives, very large, have been crowded with bees, without any surplus honey at all, and now the season is over, I am left with immense stocks quite unprovided for, and dependent altogether on the syrup can. True, these, with careful and liberal tending, will make magnificent stocks for the spring, but only I fear to go through the same programme next season—very grand as far as numbers go, but consuming all; and more than they can gather. In time, when they are thoroughly acclimatised and accustomed to our unsettled weather they may do well, at present I see that blacks are far more profitable. I intend making careful experiments this year as to amount of food required for wintering, and have no doubt I shall find that, *ceteris paribus*, Ligurians require at least *fifty* per cent. more than natives. Your correspondent, 'The Farmer,' in a recent issue makes what seems a very good suggestion as to the use to which these prolific varieties should be applied, viz., the strengthening up of those who are weaker and less numerous; but, I think, on consideration, he will see that the faults, if any, of the strangers will not be removed by spreading them over all the apiary. In fact, by introducing Ligurian brood into all your stocks, you would only be securing the maximum of evil and the minimum of good.—The Vicar.

MR. HEWITT'S SYSTEM OF WINTER FEEDING.

A young bee-keeper having informed me that he intended extracting all store from his hives, and give candy instead, as recommended by a contributor in the *Journal*, I have carefully gone through all the correspondence on the subject since July 15th, and am surprised to find how rapidly the idea has spread, judging by the number of queries you have received on the subject.

My object in writing is, with your permission, to call the attention of young bee-keepers especially to this correspondence. On July 15th Mr. Hewitt admits he has 'not had much experience with candy so far,' and then goes on to explain how he successfully pulled two stocks through for a neighbour that had only two weeks' store when examined in October, and so goes on to point out the advantage of wintering bees on such a small outlay. In the next number of the *Journal* we find 'Cornubia' asking for further instructions, to which Mr. Hewitt replies by giving a receipt for making syrup, in which he strongly recommends Demarara sugar. I may say, in passing, I have used nothing but Demarara sugar for my syrup for the last three years, because I found white lump invariably candied, which this does not, although I use feeders of my own make on Blow's 'perfection' principle, through which air passes, to which Mr. Hewitt objects; in fact I used the last of a lot made last September only a fortnight since, and it was as good as on the day it was made. I use vinegar—no salt; and, beyond seeing that it is well boiled for twenty or thirty minutes before the vinegar is added, take no particular pains to boil the air out of it as Mr. Hewitt recommends; from this we see how far two may vary in practice with equal success.

From syrup Mr. Hewitt goes on to stimulative feeding. I am ready to admit this is frequently carried too far in early spring as well as autumn; and if stocks are crammed full of bees in September, as they should be, very little inducement will be needed, if they go into winter quarters with ample store, to start them breeding in spring, as soon as weather is favourable for them to fly; but, probably, the 'spring dwindling' Mr. Hewitt alludes to was not all the result of judicious spring stimulating.

We now come to a receipt from Mr. Hewitt as to how he intends wintering his bees on candy, with the candid admission of the limit of his experience and the extent of his faith in its being a sure specific against dysentery and spring dwindling, &c. &c.

In *Journal* for Aug. 15th, this is supplemented by Mr. Hewitt with a few words of caution against burning, &c., and we have also the benefit of a sugar-boiler's experience named Mr. Saddler, not only as to making the candy, but wintering the bees with it; but beyond noticing that Mr. Saddler objects to salt and substitutes cream of tartar, I will pass on and refer to his system of wintering again later on.

In *Journal* for Sept. 1st, we find Mr. Hewitt's theory has reached not only to Cornwall, but to Sweden, and in Mr. Hewitt's answers we get his theory more fully developed, and you find him recommending how his candy should be placed intermediately between the empty combs. It is not my object to criticise adversely what has been written on the subject. The cause of dysentery undoubtedly is unseasonable activity, which leads to the bees eating to keep up warmth, and the weather being unfavourable for flight they first get distended abdomens, and dysentery follows. I do not endorse Mr. Hewitt's theory of 'crawling' having a beneficial effect by keeping up warmth without excitement, because I find bees always cluster closer towards the centre of hive as weather gets colder, and many hundreds ram themselves into the empty cells 'head against head,' while the others cluster on them and form a compact mass. When food is required they move upwards for it, if left to store it naturally; and how many of us have found that hives having consumed all store lodged on the tops of their combs have died of starvation with a large slab of sealed store in the ontside comb untouched? With Mr. Hewitt's remark about cutting brood I quite concur, but his advice to put a frame of candy in centre of hive, if it contained no brood, would, in my judgment, be most fatal, as the bees would most likely consume this first, and, as a consequence, the more they consumed the greater would be the division between the cluster, until, if the bar was emptied, we should get the cluster divided into two small ones, which Mr. Hewitt will admit is not desirable. If I intended wintering on candy, I would much prefer Mr. Saddler's practice of placing the slabs on top, a practice that has proved the salvation of scores of stocks that have run short of food in early spring.

I have called your readers' attention to this correspondence that they may see this is all the outcome of a

'forlorn hope' practised on two hives. I can safely leave old bee-keepers to follow their own judgment in this matter, as I intend myself. If this can be done, and we can prove it for ourselves, certainly 'bee-keeping is passing into quite a new phase:' but what I fear is that many, because this may seem less trouble, as 'Cornubia' points out, will be tempted to winter all their stocks on candy as advised, and find to their sorrow and disgust, as Mr. Hewitt remarks on page 98, 'That theories and arguments are all very well when founded on careful experiments, but there are too many theories, which, if tested by direct experiment, would be exploded at once, through an unforeseen factor.'

We are indebted to Mr. Hewitt for giving us his experience. Personally, I strongly advise him not to risk all his bees on this method. In theory it is unnatural, and as we have the winter before us we have a good opportunity of trying the experiment, which, if successful, will delight no one more than—AMATEUR EXPERT.

[We desire to direct the attention of our readers to the above letter. The chief object of the *B. B. Journal*, viz. 'the discussion of all theories and systems of bee-culture, that the truth of them may be ascertained,' we at all times seek faithfully to keep in view. We do not desire to hold ourselves responsible for the teachings of any of our contributors.]

SADDLER'S TABLET CANDY.—FLOUR CANDY.

If the readers of the *Journal* will peruse my letters on Candy, pages 98 and 118, they will see Mr. Saddler has failed to understand what I have written.

If anyone will look through a confectioner's window he will see there many different forms of boiled sugar almost any one of which bees will eat: so it is clear it is not *a* candy we want, but *the* one most suitable *for bees*, and to this end my attention has been directed. Had I been a 'sugar boiler,' boiling sugar to sell, *perhaps* I should use Dutch crushed, because it would soon dissolve, take up most water, and be less in price; but not being one, I use that which is most suitable for bee food, and avoid 'Dutch' because it is beet sugar, and therefore not sweet enough.

Again I have not published any receipt for making 'Flour Candy,' so how can he condemn my way? True, I use a little flour, but it does not make it 'flour' candy: neither do I put salt in to kill the grain of the sugar, though I guess the grain is 'killed' when it is *dissolved*.

He seems full of cream of tartar, and do I not condemn acids in all bee-foods? But let me compare his candy, I put mine in frames down amongst the bees, where they can get to *both* sides of it, and keep it *dry* and warm, his is put on the top where bees can only get to small portions of it and where it will absorb the moisture of the hive most freely, run *into syrup*, keep bees excited all winter, and hinder the beneficial upward ventilation: we might just as well have a syrup-feeder on all winter. Mine sets almost instantly, while quite hot, in the most minute crystals; his does not do so for a long time; not until it is cold, and then it requires drying, when it is not much better than lump sugar, and not half so wholesome, owing to the cream of tartar. Last winter I found 6 lbs. ample for a strong stock, in fact not 2 lbs. were consumed from October to April, while he had to use 29 lbs—no wonder!

What we want is a food in which bees can keep alive all winter without any loss of energy, so that bees hatched in August and September will be alive to gather honey from the fruit and sycamore trees in spring; and I find that the less food they can consume the quieter they will remain, thus tending to bring about the desired result.

However varied may be the practice which experience may suggest in using and making my candy, I am confident it will revolutionise the present mode of wintering; and before Mr. Saddler calls my way of making and using it, 'very troublesome and misleading,' I would ask him to first read, mark, and inwardly digest my way and compare it with his own; and if he can point out any improvement or error, I and all bee-keepers would only be too pleased for him to do so.—JOHN HEWITT, *Sheffield*.

SOMETHING LIKE A HIVE, AND HOW TO GET SECTIONS FILLED.

Following the example of Messrs. James and Lipscombe in the two last numbers of *B. B. J.*, I herewith enclose results of one Woodbury hive this season. I may mention the hive contains ten frames, was a last year's natural swarm, filled the hive and a few sections last year (1882). I examined the hive last autumn, and found it in good condition, with plenty of sealed food to winter on. I left them well wrapped up in chaff for the winter, and the hive opened well in the spring, requiring no help. In May I put fourteen 1-lb. sections on; and as they were filled and nearly sealed, I put another fourteen on; and when they were nearly sealed I removed the first fourteen, and put eight 2-lb. sections on: and early in June I put a crate of twenty-four 1-lb. sections, made exactly to fit the hive: and as they advanced towards completion I inserted another crate under the first crate containing twenty-four 1-lb. sections; and as they were filled and sealed, I removed the two crates, and then made up one crate with those not quite finished, and others to fill it up; and I have taken off as under—fourteen 1-lb., fourteen 1-lb., eight 2-lb., twenty-one 1-lb., twenty 1-lb., and fifteen 1-lb. sections of comb-honey from one Woodbury hive, making a total of 100 lbs., say, at 1*s.* 3*d.* per lb. is 6*l.* 5*s.*; and as I have no debtor account against this hive this year, as I consider it is as good as when I made it last year, there is nothing to deduct from above except the 100 sections, value 4*s.*, and foundation, say, 1*s.*, leaving a balance of 6*l.* in favour of hive. I ought to mention that the hive is in good condition for wintering without help. The honey the bees store in the body of the hive I leave for their winter consumption, also all the frames and the crown-board (I use crown-boards), and well cover the same with chaff, and fold a piece of carpet or old sack, and lay over the whole, and any time in the winter if I thrust my hand into the chaff and place it on the crown-board I find a good dry heat. I gum a piece of glass over the opening in crown-board, and I do not find any condensation on it if well protected with chaff and wraps.—W. WOODLEY, *World's End, Newbury*.

HOW AN EXCESS OF YOUNG QUEENS IN A SWARM ARE DISPOSED OF.—ENCASEMENT.

I got last year a Syrian and a Palestine queen, and owing to their prolific habits, have now a number of more or less half-bred stocks. A few items observed in connexion with them may be of interest. In endeavouring to prevent the original Palestine stock from swarming (but without success) I cut out seventy-three queen-cells with eggs or larvæ, without reckoning empty 'acorns;' seven or eight young queens in a swarm were not uncommon. They are terribly difficult to manipulate. I have several times been much stung, and their stings have, I think, much more pungency than in the other races. I placed a young queen between my lips to hold her, as I have often done before, but on this occasion received as severe a sting as ever I had.

I have always supposed, in accordance with current teaching, that when there are several young queens with a swarm, they decide the question of succession by single combat, but this cannot be the universal rule, as one observation of mine shows. A swarm (hybrid, possibly Ligurian) had been hived in a skep during my absence, and three or four days after I put them into a bar-frame.

They had made one piece of comb about as large as a hand (the weather had been bad); on this was a dead queen, stiff, and in a strained attitude. My first idea was, These are no use, the queen is dead, but I found a cluster of bees, and therein a living queen encased. She was, however, dying and unable to move her front legs. Having now a suspicion of the state of matters I made further search and found at large an active, healthy queen, already somewhat exceeding the slenderness of a young queen. The dead queen on the comb had obviously not been stung to death. There can be little doubt it had died by encasement, like its fellow found dying in that way, and others may have preceded it. I am going to revert to black bees; my best hive has always been a black one.—T. A. CHAPMAN, *Hereford, August* 31.

BEES AT SHOWS.

No one has entered a word, so far as I have observed, in the *Journal* in protest against a circumstance at the show of the B. B. K. A. at Knightsbridge. Yet it is a matter that ought not, I think, to be passed over. The Association places humanity to bees in the forefront of its programme, and it is extremely desirable that it should act up to its professions in this matter. Now I saw at Knightsbridge some dozen or more stocks of bees confined absolutely to their hives, and, I presume, so confined during the several days the show lasted, and this in weather when bees would be abroad all day long. Those I examined looked truly wretched; the mortality must have been considerable. Living bees ought not to be an item in any show (especially of several days' duration) when arrangements cannot be made for their flight.—T. A. CHAPMAN.

SUSSEX BEE-KEEPERS' ASSOCIATION SHOW AT HASTINGS.

Honest criticism is not unwholesome, and should offend none. The above show is reported in the *Journal* as being one which, from every point of view, must be regarded as a complete success. And it was an excellent show. But is it satisfactory to Sussex bee-keepers to see eight out of the seventeen awarded prizes for honey exhibits go out of the county? Four first, two second, and two third prizes—two of the judges carrying off five of these eight prizes. I do not think that any one either can or will for a moment question the justice of the awards. Sussex was no doubt fairly and honestly beaten. But how comes it about that Sussex in her own county show had to encounter the competition of her sister, Kent? This, I think, requires some explanation, for in the schedule list of prizes (issued before the show) the whole of the honey classes would appear to be limited to Sussex only. 'Thus, it is stated that classes 8, 9, 10, and 15 are open only to members of the Association.' 'Classses 11, 12, 13, 14 for cottagers only, (residing in the county of Sussex.) And yet in Class 11, the first prize was awarded to Godstone, and the second to Tunbridge Wells, and in Class 13 the third went to Groombridge. There is also a singular inconsistency in the wording of the prize schedule itself, for after stating that Classes 8, 9, 10, 15 (15 was the honey fair) were open only to members of the Association, it adds, 'Class 15, members free; non-members, 1*s*.' With regard to Classes 8, 9, and 10, the explanation may possibly be that the successful Kentish exhibitors are members of the Sussex Association. But then, what of Classes 11, 12, and 13, which were restricted to cottagers only residing in the county of Sussex? And further, if such is the explanation, I would like to ask whether the Sussex Association should have accepted bee-keepers residing in other counties as members.

It is with much reluctance that I sound what may perhaps be regarded as a discordant note about the Hastings Show, for it was a really good show, and well conducted; but I think the points I have raised are of some importance, and of more than mere local interest. Would it not be better, so far as membership and produce are concerned, for County Associations to be County Associations, and County Shows to be County Shows, in more than mere name? Let it remain the office of the Central Association to bring the counties together in competition with one another.—H. T. SPICE, *Westham, Hastings.*

P. S. I have sent a copy of this letter to the Hon. Sec. of the S. B. K. A.

SINGLE AND DOUBLE-SIDE HIVES.

In looking over the back numbers of the *Journal*, I notice Mr. Watkins considers hives with double sides expensive and useless complications, and wishes some one to make comparisons between single and double-sided hives. Now I am unable to do this as all my hives have double sides; but I can assure him that those of my hives that were packed thickest with chaff and wraps last autumn came out strongest and best in the spring; and three of them that had no chaff between the inside and outside walls—only a wrap folded up and laid on the top of hive without side cover—came out in the spring weak, and one of them suffering with dysentery; and it required careful attention to bring them through, while those I packed carefully came out strong and well, with plenty of winter store untouched. And farther than that, now we are got to the end of the season, I can speak of the superior value of those stocks as honey-gatherers that I found strong in the spring: those three I had to nurse, I united two of them, and the other I left to itself as the season advanced, and it has worked me about twenty-four 1-lb. sections (all three had young queens) and were equal to my other hives in autumn—minus the packing.

Mr. W. says (page 68) that double sides to hives are *modern ideas:* and, if I mistake not, so are a hundred sections of pure white comb honey gathered by one *double-sided* Woodbury hive in one season *modern results,* especially in a medium season like the present one has been. I fail to see the analogy of thick hive-sides and an extra garment or blanket to wrap up the human body, as the bees and their masters exist under very different forms of life. The bee-master will require during twenty-four hours of his existence half-a-dozen pints of food and 45,000 cubic inches, or 1440 gallons, of air; while the colony of bees consume but very little food (see Mr. Carr's letter in September number) during the same period of time, and of course a corresponding quantity of air. Then as to metaphors of starved horse and 'Norwegian cooking-stove,' perhaps Mr. W., during the coming winter, will experimentalise with a single-side hive, and reduce the thin sides he advocates a shaving a-day, till his bees are surrounded by an airy nothing sometime next January or February; and if they survive and do well another year, we 'double-sides' will concede the point of the superiority of our hives.

I think it is very probable that severe winters are drier as a rule than mild ones, and generally I think we get more genial springs after severe winters; perhaps that may account for bees doing better in severe than mild winters. And again, bees during severe weather are more dormant, take fewer flights, and consequently there is less wear and tear of their systems, and as a sequence they live farther into the spring, and are able to keep up a greater body of heat and induce the queen to lay more eggs in early spring; while during a mild winter, breeding is going on nearly all the time, the old bees have to go abroad for water and are continually at work nursing the brood, and die off much earlier, while those bees that are bred in the late autumn and winter months have not got the stamina that those

have that are bred in proper season, and many of them leave the hives early in the season for a first flight never to return, getting chilled, and crawling about the ground in front of the hives till they die, and that is one reason for spring dwindling I believe. Perhaps some of our large bee-keepers will give us their experience of severe and mild winters. I think Mr. Thorpe told us he put eighty-seven hives to stand the winter last year, and only lost one. Will Mr. T. tell us how to do it?—WOODLEIGH.

HANDY FUEL FOR SMOKERS.

I have been frequently at a loss what to burn in my smoker this summer, as it went out as a rule, or, after some delusive puffs, declined to emit any smoke. In the midst of operations this is, of course, most annoying. I tried old rags, carpet, hemp, and bark all in turns, each proving equally unsatisfactory. Last week I came across some old lamp-wicks I had had lying by for years, when it occurred to me to try these in my smoker. The result was beyond anticipation, as I found, after the wick had been fairly lit (which it does quickly), that it steadily continued to emit good puffs of smoke without going out. I shall be glad if this handy and cheap method of lighting the smoker may serve as a hint to any of your readers whose patience has been equally tried.—K. F. KROCKER, *Forest Hill, Aug.* 20.

EXPERIENCE *v.* SYMPATHY.

Being a constant reader of the *B. B. Journal*, an article which appeared headed 'Sympathy' in the August number took my especial attention. Being myself the wife of a bee-keeper, and of only four months' experience, I thought my experience might be of benefit to ladies who take an interest in the humane management of bees. I have been much amongst many kinds of bees since I have taken an interest in the work, and I have never used any protection against the sting of the so-called ferocious little insect the bee; and thus far I have come from the scene unpierced by their stings. I cannot but think there must have been either some hasty movement or mismanagement on the part of my brother and sister bee-keeper. I find it best to keep perfectly still when the bees alight upon you, and in so doing they soon take their flight; wishing every lady or sympathising wife may be as fortunate as I thus far have been. I cannot exactly take home the warning which my brother gives, as I never had any experience previous to the last four months, and before that time, I doubt not, was as nervous as any lady could be who may contemplate bee-keeping.—THE WIFE OF A BEE-KEEPER.

WORKERS IN QUEEN-CELLS.

In *re* Mr. S. Simmins' remarks about queen-cells in your issue of Sept. 1, I am persuaded that every bee-keeper who is *daily* engaged in the various manipulations connected with bar-frames is able to distinguish the difference in the appearance of a cell in which a queen has been matured and one in which she has not reached maturity. In the case of the cell and bee I sent up for examination, Mr. Cowan would find that very little indeed of the royal jelly had been used, a plain proof the queen had not been matured. Again, I carefully examined the cell, and found it had not been opened, at least the cocoon had not previously been cut in two, or the fibres would not have run along the side of the cell into the capping. Perhaps Mr. Simmins will be able to find one of these numerous cases of re-capping and imprisoning a bee, and send it up to our worthy Chairman for preservation as one of the many wonderful and strange things that bees do.—GEO. STOCKS, *Winsford, Cheshire.*

PERFORATED CROWN-BOARDS.

I have read with much interest the contributions of Mr. Lyon on p. 135, and Mr. Simmins on p. 154 of the *Journal* on 'Quilts *v.* Crown-boards.' The plan which I have some thoughts of adopting this winter with my hives is similar to that of Mr. Simmins in one way, viz. putting over one layer of calico, a framework packed with chaff on which I would tack a light wooden bottom; but I would bore through the wood a large number of small gimlet-holes, almost as close together as those in perforated zinc. This would still preserve the only advantages which Mr. Simmins claims for his plan, namely, neatness and tidiness, and the prevention of the turning up of the quilt by the wind when feeding; while at the same time, it would not interfere with free ventilation upwards as other crown-boards do, and which is the chief objection of many bee-keepers to them. If Mr. Lyon or Mr. Simmins, or any other eminent bee-keeper, considers perforated crown-boards objectionable, I should be glad to hear the grounds of the objections through your columns.—J. J. ELDER.

A LATE SWARM.

On the 4th of this month my gardener found a fine swarm of bees on a thick bough of an apple-tree in my orchard. It had been there some days, and had weathered the storm and rain of the 2nd and 3rd. It weighed 5 lbs. There was a piece of comb 4½ ins. long and 3 ins. broad. The bees are safely housed in a bar-frame hive, with six combs from which I had extracted honey a few days before.—J. LAWSON SISSON, *Edingthorpe, Sept.* 10*th.*

OBSERVATORY HIVES.

'Amateur Expert' has curiously misunderstood the object of my first communication on this subject. I do not seek lessons in carpentering and joining! This, from his last letter, seems now to be all he has to offer, but this I think I can more or less get over without help.

The end I had in view in opening up the subject in your columns was to point out that in my opinion the great need of intelligent, progressive, and successful bee-keeping was a good observatory hive,—one that should be simple in management, and within the means of the majority of bee-keepers. Remarking that the observatories in the market were far too costly for general adoption, I inquired 'if some kind friend could, out of his own experience, show us how with a little ingenuity "an old box" could be converted and managed as an observatory.' In thus referring to 'an old box,' I of course wrote somewhat figuratively. Obviously what I sought was;—*how to make at home with such facilities as usually offer a simple, inexpensive hive which should answer every practical purpose as an observatory.* This surely involves something beyond the mere knowledge of how such a hive may be 'put together!'

As a novice in bee-keeping, I am acquainted with little or nothing of the advantages or disadvantages of the various observatories in the market, and cannot tell 'Amateur Expert' which particular kind of hive will 'suit.' As I have before said, this is just what I, in common with others I think, want to know.

I am sorry to trespass so much on your space, but still have hope that some good may result from the discussion.—EBOR.

[We have submitted the above letter to 'Amateur Expert,' and his reply is 'that he has nothing further to say to "Ebor."' We regret that the correspondence that has appeared in our columns has not led to more purposeful results.]

LIGURIANS AND CANADA BALSAMS.

I should like to hear through the *Journal* whether other people's experience has been similar to mine on this subject. I have had a large patch of borage, and eighteen very large plants of balsam in full bloom side by side close to the bees (eighteen stocks); and while the borage has been covered with bees from morn till night, I have never seen any thing but humble bees at the balsams, until the 7th September, when I found my Ligurians very busy at them, but have not (even now that the borage is almost out of bloom) seen a single black bee enter one of the balsam blossoms. My experience last year with sunflower was very similar. I grew a large patch of them understanding they were good for bees, but never saw a dozen bees, other than humble bees, upon them. I think those who recommend certain flowers for bees should have some experience in the matter before they lead people astray. I have so far only found borage and Limnanthes worth growing, but have set out a large patch of wallflower and a good deal of thyme; and if all is well shall know next year whether *they* are worth the trouble.

LIGURIANS AND HYBRIDS.—I should also be glad of advice on this matter, I have a very fine lot of Ligurians, the queen from Mr. Abbott I introduced on 30th June, and there are ten frames covered with bees, plenty of brood, but not near as much honey as the blacks next door (I suppose the great quantity of brood will account for this). But what I am concerned about is the ferocity of hybrids, which from all accounts will go out of their way for the sake of stinging, and I have thought of making an arrangement with a cottager two and a half miles away (and some distance from any bees), to keep the Ligurians there altogether; had I better move them now, or early in the spring? And is it true that the hybrids are such dreadful creatures?—SELBY-HELE, *Dunkeswell Vicarage, Devon.*

[We should not advise our correspondent to remove his bees from his personal oversight till such time as he has ascertained the necessity of doing so. Hybrids are not always such 'dreadful creatures' as they are represented; and with careful and quiet handling, it might be found that there was not any difficulty in their management.]

NORFOLK (BEE) SUPERSTITION.

'A neighbour of mine had bought a hive of bees at an auction of the goods of a farmer who had recently died. The bees seemed very sickly, and not likely to thrive, when my neighbour's servant bethought him they had *never been put in mourning for their late master*. On this he got a piece of crape and tied to a stick, which he fastened to the hive. After this the bees recovered, and when I saw them they were in a very flourishing state—a result which was unhesitatingly attributed to *their having been put into mourning*.'—*Norfolk Garland.*

THE MOUTH OF THE STOMACH IN THE BEE.

(*Continued from page* 80.)

Besides the frame-work, the mouth of the stomach shows us the three membranes of which the chyle-stomach consists,—viz., mucous membrane, muscular membrane, and upper membrane. The most important appears to be the muscular membrane, which encompasses the mouth of the stomach from the points of its lips to its passage into the chyle-stomach, of course not everywhere in equal strength and thickness. It is exclusively composed of transversely striated muscles, which partly wind themselves ring-like about the mouth of the stomach in considerable bundles, most thickly where the organ has its largest circumference, therefore above and below the angle of the lips, and partly go lengthwise from the point of the lip into the chyle-stomach where they are attached in the first ring. We shall see, in the second part of my paper, that these muscles bring about the movements of the lips. But how powerful their strength and working capability is fig. 7 shows us, which I have drawn from nature, and in which we can distinctly see how the second lip is spasmodically drawn back and nearly broken off by the long muscles. In this figure the third lip is quite cut off and the upper membrane is removed from the first lip. I have often on repeated occasions been able to observe on one and the same

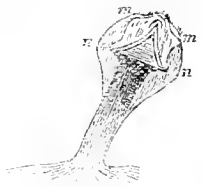


Fig. 5.

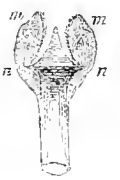


Fig. 6.

Fig. 7.

organ this interesting occurrence, which always happens shortly before the death of the muscles, when the lip, as soon as the convulsive contraction ceased, sprung back back again into its normal position through the pull of the ring-like muscles.

Lastly, we have the very loose, spongy upper membrane to mention, which covers the organ in its whole extension and gives to it its oval, plum-like form. This membrane gets its necessary tension mainly by two strong strips (or muscles?) which in Figs. 5 and 6 we see at *m*—*m*. In Fig. 6 the third lip and its upper membrane are both cut off. These strips push up the membrane as it were into a lump, become, when the lips open, like an elastic spring pressed together, and jerk up again springing when the pull of the muscle ceases. In continual motion of the lips, these strips may be seen working up and down like a pump-handle.

Since we have now learned to know the construction of the mouth of the stomach in its principal outlines, I would just here remark that I can make no claim for the completeness or infallibility of my representation; and the final establishment of details and specially difficult relations must be held over for further study, since it is not easy at the first effort to gain a complete and exhaustive knowledge of the true structure of an organ hitherto unknown. At the same time the extremely tender membranes of the organ oblige the microscopist to work with something beneath the object which considerably interferes with distinct vision. Through want of a dissecting microscope and the necessary chemical appliances I have not yet been able to satisfy myself on the true structure of the upper membrane, its attachment, &c.

We now turn to inquire as to the function and purpose of this mouth, and hope in that respect to be able to afford to our readers something extremely interesting.

If we look at Fig. 1 of my drawings carefully, it becomes immediately obvious to us that the mouth of the stomach, although lying inside the honey-stomach, must manifestly be looked upon as an integral part of the chyle-stomach. It forms, as we see, only a projection of it considerably extended forwards, very much as our head is placed on the trunk by means of the neck. Besides, the different membranes of the mouth of the stomach are developed directly out of the membranes of the chyle-stomach corresponding to them; and in the same way the very thick network of tracheæ, which traverses the mouth of the stomach and conducts to it, with the flow of blood accompanying it, what is necessary for life is an immediate continuation of the large tracheal branches of the chyle-stomach. The stomach-mouth is therefore certainly no simple valve of the honey-stomach. If we further consider, in addition to this, that the colossal layer of muscles of the organ is exclusively formed of transversely striated muscular fibre that always serves for the voluntary use of the animal, and that the bee has the capability at all times of *volun-*

tarily contracting the muscles of its alimentary canal—a fact which I have proved in my previous paper on the 'Salivary Glands,' and whereby the ejection of the honey is demonstrated—it cannot for a moment appear doubtful *that the bee has also at command a free voluntary control over the functions of the mouth of the stomach, that is, over the opening and shutting of its lips.* But we know that the bee cannot receive material for her nourishment otherwise than by the mouth of her stomach; we can therefore similarly say here, that if her provision-room is only filled, by virtue of her voluntary control over the mouth of her stomach, she may eat and drink when, where, and how she likes, without being obliged to trouble her external mouth about it in any way.

The correctness of this view and the way the bee eats may be demonstrated by observations. Of course we shall not be able to see directly how the bee eats and drinks, since her mouth is situated inside of her body. To make vivisections for this purpose would not lead to anything; for to see the mouth of the stomach in the living bee, one would have to cut off at least the entire upper part of the first abdominal ring, and in that case, what with the pain and influence of such a severe wound, certainly all appetite for eating and drinking would be gone. Treviranus has made vivi-sections; but that they could strengthen him in his well-known incorrect view which proves their unreliability and unsuitableness for our case. Besides, we do not require them. Other observations give a more certain result.

If hungry bees, whose stomach is empty, are fed with coloured honey, or, still better, with much pollen that has been mixed with diluted honey, and during their feeding, or immediately after it, some bees are caught and immediately killed, the honey-stomach will of course be found to be filled with the food that has been partaken of, but the chyle-stomach will as yet show no trace of the fresh introduction of food. So that at one stroke is refuted Burmeister's erroneous view (at the place quoted, p. 379), that the mouth of the stomach of the bee, wishing to partake of food, raises itself up to the opening of the gullet into the honey-stomach, and being at the same time pressed in, there receives the nutritive material directly through the swallowing movements of the gullet. Besides this, there are other important reasons which cause such a mechanical appropriation of food to appear quite impossible. If, however, in about a quarter of an hour's time some other of the fed bees are examined, a part of the food partaken of is found in the chyle-stomach, in which may be distinctly seen the coloured honey, or pollen-grains. For this there is no need that our editor should give any voucher. Every further examination undertaken hour by hour of other bees out of the same box shows the further passage of the contents of the honey-stomach into the chyle-stomach, till after from twenty-four to thirty hours the store of food is exhausted and the bees are hungry again, since imprisoned bees, like those that are working hard, experience a very rapid change of matter. This observation, of whose correctness every one may easily convince himself, allows no doubt to arise, that the bee voluntarily, according to liking and requirements, consumes with the mouth of her stomach from the store to be found in the honey-stomach. With the same quantity of food, that she used up in this case in twenty-four hours, she would have been able in October and November, vegetating quietly in her hive, to have kept house for many days.

The way and fashion in which the mouth of the stomach acts agrees most beautifully with the voluntary appropriation I contend for. This, too, may be established by observation. That the opening and shutting of the lips of the mouth of the stomach and the swallowing motions of the gullet of the mouth of the stomach result from muscular activity can scarcely be doubtful from what has gone before, especially when we consider the colossal layer of muscle that envelopes it. It is now well known that at the death of an animal the contractility of its muscles does not immediately cease. In cold-blooded animals they remain still lively, perhaps for some six to eight hours after the death of the animal. The bee, with its variable temperature, retains the contractility of its muscles for a good while. Who has not seen how a bee-sting remaining fixed in the skin bores itself in deeper and deeper, although it is torn off from the bee? If, then, the mouth of the stomach of a freshly-killed bee is put under the microscope, the activity of the lips in not a few examples may often be observed for half an hour, especially if we take the precaution of not working with distilled water, which quickly deadens the muscles, but with a solution containing $\frac{3}{4}$ to $\frac{1}{2}$ per cent of common salt. These muscular movements of the lips are in the highest degree interesting. At one time only one lip opens and shuts in slow time; then two standing opposite each other open and shut in quick succession like the jaws of a dog barking vigorously; then all four work most rapidly: but of course these movements under the microscope are only involuntary. But they give, nevertheless, a faithful representation of the voluntary motions of the mouth of the stomach in the living body, since in the method of muscular activity the death of an animal does not change anything. The irritated hind leg of a dead frog makes its ordinary leaping action, and an animal's heart that has been cut out moves just as required in the circulation of the blood in the living body. We may, therefore, actually see from the involuntary movement of the lips of the mouth of the stomach how the organ acts in the living body. That this acts voluntarily will not be doubtful to any one. If, therefore, the bee wishes to take food, she contracts the muscles running along the mouth of the stomach longitudinally up to the point of the lips. Of course the lips are opened the more easily and surely, since the muscles do not run in a straight line from the gullet of the mouth of the stomach up to the point of the lips, but, in consequence of the broad basis of the lips, are obliged to make a considerable bend outwards, whereby their effect on the points of the lips must be so much the more energetic. Into the vacancy arising on the opening of the lips a part of the liquid to be found in the honey-stomach must necessarily shoot, since the mouth of the stomach swims in this liquid. At every opening of the lips the muscles, attached ring-like around them, are extended, and as soon as the pull of the long muscles ceases, immediately spring back into their former position, and the lips close. It is easily to be understood how the swallowing movements of the gullet of the mouth of the stomach must ultimately conduct the nutritive material into the chyle-stomach.

But for what purpose is there such a wonderful arrangement? Why has the bee to eat and drink with a second internal mouth while her external mouth acts, as it were, only as a hand to conduct the food to the internal mouth? Why must she, of all others, have at command a free, voluntary control of the mouth of her stomach?

One might, perhaps, assume that the mouth of the stomach has no other function than that of a valve working mechanically to divide the honey-stomach from the chyle-stomach, so that the honey collected in the former at the time of ejection might be protected against a mixture with brood-food out of the chyle-stomach. But we shall easily convince ourselves that the mouth of the stomach does not act as a valve; moreover, the services of a valve are here not necessary. Let us accompany a bee on her working flight. Quick as an arrow she flies to the blooming rape or clover-fields; diligently she goes from flower to flower; with every draught she takes her honey-bag is filling. At last it is filled; joyfully humming she hastens homewards; out of breath, she rests for a moment on the door-sill, then slips into the hive to deposit her sweet burden. What has enabled

her to retain the nectar in the honey-stomach so that it was not pressed into the chyle-stomach by the worm-like motions and pressure of the muscular membrane of the stomach? Certainly, we must reply, only the securely closed lips of the mouth of the stomach. But the lips did not remain by any means closed because the organ was a valve. There is present no trace of arrangement whereby they are obliged to be closed when honey is in the honey-stomach. That the honey closes it itself on account of the pressure it exercises on the lips no one will wish to conclude, for there the bee would certainly be obliged to starve with a full honey-bag. No, the bee has brought home the honey for the common store, because it is her nature and lot to collect honey. That she took as much for herself in gathering as she needed for her own sustenance, or what is the same thing, as she liked, who will doubt it or blame her for it? She was quite justified in doing so, as there was nothing at all to hinder her. She simply prevented more honey than she needed reaching her chyle-stomach against her will by not opening the mouth of her stomach, just as we let our masticatory organs rest when we are satisfied or do not want to eat any more. The mouth of the stomach has still less to do with the ejection of the honey. The act of ejection is, as is well known, a consequence of the contraction of the membrane of the honey-stomach. If we look at fig. 1 it is immediately obvious to us that the first contraction of the wall of the stomach braces in and so compresses the gullet of the mouth of the stomach that all communication with the chyle-stomach is stopped—a result which is so much the more certainly attained, since the gullet of the mouth of the stomach here consists of the most delicate membranes, and is grown into close connexion with the wall of the honey-stomach. The honey-stomach, then, is shut off in the act of ejection by its own absolute power, and does not require any valve.

If this view is correct—and no one will be able to bring forward anything very weighty against it—we find a marvellous harmony in the structure of the entire alimentary canal of the bee with the peculiar nature and position that the bee occupies in creation. For example, the bee represents a double nature—first as an independent insect, and then as a member of the hive. Both positions are so intimately connected with one another that the individual insect cannot live without the community of the hive. In the same way the alimentary canal divides itself into two parts, distinctly separated from one another, and at the same time most intimately connected with each other, of which the first consists of mouth, gullet, and honey-stomach, and of which the second again consists of a mouth, gullet of the stomach-mouth, and stomach with its appendages. Taking account, then, of this nature of the bee as a double being, we see the purpose and definite office of the mouth of the stomach in this, that it satisfies the life-requirements of the bee as an individual insect, and at the same time as a member of the hive.

Let us speak, first of all, of this latter. We know that the life-requirements of the hive are very fluctuating and different. An animal in its freedom requires, for the normal preservation and maintenance of its life as much food one day as another. We may accurately estimate how much carbo-hydrate and how much albuminous material is requisite for it. A hive, or the bees as members of the entire colony, need at one time an extraordinary quantity of food, at another very little. Now in order to be able to regulate the necessary supply of food for the circumstances and requirements of varying seasons, the bee must have her stomach-mouth, since her external mouth, as we know, only supplies food material to the honey-stomach, and therefore cannot possibly exercise any influence on the requisite larger or smaller quantity of the supply.

(To be continued.)

Echoes from the Hives.

Hamilton, Victoria.—We are now in the midst of winter, we have had the worst weather imaginable for more than a whole month; storms and rain, sometimes a fine day, and then rain again, the gardens are almost immersed in water; but as soon as there comes a fine day, as it is to-day, the 11th July, we have 52 degrees heat in the shade; and the little busy bee improving each shining hour, is gathering plenty of honey, and comes home laden with pollen. But I find that the strongest hives work best, are the most busy, whilst the weaker ones hardly move out; therefore, I come to the conclusion, that your method of uniting swarms in autumn is the best; but as bees are so plentiful here, and bees and honey have no value, we do not trouble if we lose some of them; one can get plenty more without paying for them. The chief reason why feeding is unnecessary here is this; as soon as moist weather sets in, roses, mignonette, stocks, &c., bloom again; in fact, there are more flowers late in autumn here than in dry summer, and now July, the coldest month in the year, the almond-tree and cherry-plum begin to bloom, also furze, broom, and many more. With these few remarks, I say good-bye to my friends in Old England.—Herman Naveau.

Kelvedon, Essex, Sept. 3rd.—The honey harvest is now quite finished. I have done fairly well for the season, but it never rallied after the last week in June. The stocks I removed had very little opportunity of collecting from the richly laden clover blossom. I have taken about 200 sections filled, and a good number nearly finished, besides some very fine supers and side-boxes, amounting altogether to above 300 lbs. I intend next season to confine myself entirely to sections. My stocks are in good order for going into winter quarters; they will not require any feeding before the spring; I shall then resort to my sugar cakes, which succeeded so perfectly last year. From experiments I have been making this season, I quite think that sections may be worked in side-boxes very easily, but require easy communication throughout to all the sections, just as they have in a box of ordinary honey-comb. I made a clear passage between every two rows of sections, thus placing one side of every section next the passage. There is no doubt a great impetus being given to improved bee-keeping. I had two young ladies called on me last week, very anxious to begin at once; I advised them to wait till the spring. When I showed them my sections and supers they were quite surprised.—W. T. Braddy.

North Leicestershire.—Bees have been very busy on the borage and garden flowers, but the fact that many stocks are absolutely without stores, shows that there is barely sufficient honey to be obtained from those sources to stave off starvation. Fast feeding is the order of the day. Wasps and robber-bees are extremely troublesome, keeping the bees in a constant state of excitement, which will eventually show its ill effects by the rapid shrinkage of strong stocks into weak ones.—E. B.

East Derbyshire, Sept. 8th.—About the middle of last month a most agreeable change took place in the weather, and on the 16th my bees discovered the heather between two and three miles distant. The twenty-five stocks brought home, between the 16th and the 26th, about 4 cwt. of honey, and all recommenced brood-raising, so that they are now in grand condition for wintering. As an experiment, I took three stocks on to the moors; but those at home did almost if not quite as well in spite of the distance. A stock which had just been deprived of a drone-laying queen was joined to next hive, '*a la* Simmins.' There was hardly any fighting, but they killed the queen to which they were introduced. *Verbum sap.*—The Vicar.

Cairnie-by-Keith, N. B.—On the 17th August the weather changed from cold winds, hail, and rain to bright sunshine, and bees were once more hard at work until the 26th, when it again broke down. Hives which swarmed are in very poor condition (I have no swarms myself) and will require feeding with no stinted hand. Now swarms, on the other hand, are in prime condition, having plenty of stores and lots of brood. The honey yield is very poor, but the quality, contrary to expectation, is first class. My best stock did not give more than 28 lbs. of supers; last year the same hive produced over 90 lbs. The next important question 'on the boards' is the best way to winter bees.—A. Cockburn.

Leslie, Fife.—We are all busy reducing stocks and feeding up for winter. The season has been a dead loss to all bee-keepers in this quarter, no return in most cases and in others not a fourth part of the outlay. Rainfall for August, 4·3 inches.—J. L.

Wexford.—The yield in this part of the country is very poor, not more than half as much as last season, if so much.—M.

Queries and Replies.

Query No. 698.—*Moving Bees.*—I began with two swarms in June in bar-frame hives. I have just bought another stock in one of Messrs. Neighbour's observatory hives, which has another skep on top, with access to both, and appears to have been so long that the comb in the bottom skep is the colour of mahogany, with a lot of holes drilled in it. I should like to put them into a bar-frame hive. Must I transfer the comb from the top skep to the frames? Would it be safe to transfer them now? As I had to move them 500 yards from the old stand I kept them shut in with perforated zinc the first four days. They did not appear to fly away when I removed the zinc. Was I right in removing it?—Thomas Shaw, *Haverstock Hill.*

Reply to Query No. 698.—To move bees so short a distance as 500 yards you would have done better to have driven a swarm from them and placed it upon the old stand, removing the stock to its new position, and in the evening removed the swarm also. You could have united again afterwards. You can safely transfer now. But, as the combs are so old, they are hardly worth the trouble, except such as contain brood. Tie all this into one or two frames, and place a frame filled with foundation between them and other frames of foundation outside them. If the comb in the top skep is worker-comb and of good colour, you can use it; but you will most likely find it to be nearly all drone-comb; do not transfer that to your frames.

Query No. 699.—*Stingless Bees.*—Can you tell me if, and where, the Australian stingless bee can be procured? Is it a fair honey-gatherer, and hardy enough for this climate? Are there any other races of stingless bees likely to be better, fertilization of fruit-blossoms being of more consequence than large yield of honey?—J. R.

Reply to Query No. 699.—We believe the stingless bee has never been imported into this country. From its being a native of warm climates, as the West Indies, the northern parts of South America, &c., we do not think it would succeed in this country, with its long, cold winters, since it is a variety which stores little honey, and, indeed, partakes more of the nature of a tropical fly than of that of the honey-bee. Why not cultivate the gentle Italians, the best fertilisers of all the varieties?

Query No. 700.—*Driven Bees.*—I have several hives of bees offered me, provided I can keep them. Will you kindly inform me the best way to proceed after driving them out of the straw hives? I see in the *Journal* some recommend old comb to be put in the frames, but, with me, this is an impossibility, as I have not any. Would four or five frames filled with comb-foundation and placed in the bar-frame hive do to winter them in if fed regularly? And kindly say what would be the best food to give them under the circumstances.—Thos. Morgan, *Malvern.*

Reply to Query No. 700.—When placed upon six frames filled with foundation, and liberally fed, you may succeed in bringing the bees through the winter; but your chances would have been better had the transfer been made three or four weeks sooner. Confine the bees to six frames, and feed fast—as fast as they will take it down—not in driblets, every evening, on syrup made from 5 lbs. of sugar to a quart of water. The more bees the quicker the combs will be built. It is well therefore to unite two stocks of driven bees.

Query No. 701.—*White Bees.*—One day last week I observed upon the alighting boards, and upon the ground in front of two bar-frame hives, a number of white, dead bees and the mangled remains of grubs. According to a caution in the *Bee Journal* of March, 1882, these signs would indicate starvation in the hives, but, upon examination, everything seemed to be all right, and the hive contained large quantities of sealed honey and abundance of bees. How do you account for the appearance of the white bees and grubs?—O. H. M., *Isle of Ely, Sept. 3rd.*

Reply to Query No. 701.—The white bees you noticed were the drone larvæ, which the bees destroyed because honey had ceased to come in, and, having a fertile queen, they had no further need of male bees. In a dearth of honey, bees will often destroy worker-brood; but this is evidently not the case with yours, and therefore the destruction is a sign of prosperity.

Query No. 702.—1. *Transferring.*—I have several skeps of bees which I wish to transfer to bar-frame hives. Is it the best time to do it now, or wait until the spring? 2. *Combs.*—Is it desirable to give the bees afterwards foundation on all the bars? 3rd. *Food.*—What is the best preparation of food to be given them afterwards to replace the pollen for spring feeding, which would be lost to the bees by their removal from the old comb?—Novice, *Middlesborough.*

Reply to Query No. 702.—1. Transfer at once. Better do it now than wait till spring. 2nd. Use the combs taken from the skeps. See *Modern Bee-keeping*, under 'Transferring,' pages 54, 55. If there is not enough comb to fill six or seven standard frames, make up that number by full sheets of foundation, inserted alternately between the combs, and feed freely on syrup made from 5 lbs. of sugar to a quart of water. 3rd. You will find sufficient pollen in the old combs. Pea-meal or other farinaceous food may be given at spring.

Query No. 703.—*Bleaching Wax.*—If I bleach bees'-wax, and change its colour from bright yellow to pale white, and, moreover, remove all flavour from the same, would it be disqualified at a bee-show? or, in other words, would it have any chance of gaining a prize if samples of pure wax of good flavour and colour were exhibited?—Birkenbog.

Reply to Query No. 703.—It is undesirable to bleach wax intended for exhibition. The old combs should be simply melted down and freed from all impurities by being strained into any vessel or dish having a smooth surface. When cold any dirt found at the bottom of the wax should be cut off, and the wax re-melted. Wax of this kind would undoubtedly be preferred by the judges to that which is bleached; it would retain all its natural qualities of colour, pliability, and aroma. Wax that is bleached bears a greater resemblance to that which is adulterated with vegetable wax or paraffin, and raises a doubt as to its purity.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Rev. A. H. H., *Notts.—Best Sugar for Bee-food.*—That sugar is the best for bees which has the largest amount of saccharine matter and is least chemically dealt with. We therefore consider the sugar most to be preferred is the old-fashioned Muscovado raw sugar—the Porto Rico or Dry Barbadoes. Duncan's Pearl (a fine dry sugar) and Refined Dry Crystals may also safely be recommended. Unrefined sugar is, however, more subject to fermentation than refined. In loaf sugar (refined from raw sugar), and in Demerara, some colouring matter is introduced—a blue into the former, and sulphuric acid into the latter.

X. Y. Z.—*Honey from Valparaiso.*—This honey is very similar to that exported from Jamaica. It has a strong pine-apple flavour. We do not notice anything objectionable in it to the taste; but we would recommend caution in using it as bee-food.

W. T., *Abbeydale House, Sheffield.*—1. *Heather Honey.*—The method recommended by the bee-books and put in practice by you,—viz. Raise all slowly to a heat above melting wax, and then skim off the wax, has not, from the sample received, yielded a favourable result. The honey is mingled with wax, and is objectionable to the taste. From your description of its appearance, your difficulty in its extraction, and your vicinity to the heath, it must be pronounced heather honey. Yet in its flavour and taste it is very dissimilar to the far-famed Scotch heather honey. Heather honey cannot be moved by an extractor after it has been stored for a short time. It sets in a few days, and unless operated on at once there is little hope of its being extracted. (We have, however, heard of its being extracted when it was two weeks old by a powerful extractor.) Three or four days is as long as it can be left in the hive and be easily extracted. If extracted the same day as gathered it is exceedingly thin, and does not keep well in jars unless artificially ripened. There is some peculiarity about heather honey which makes it thicken in the comb to a mass resembling jelly; and when this is hurled out by the rapidity of the revolutions of the extractor, it comes out as solid pellets from the comb. Heather honey is generally eaten in the comb, and is much relished, and this is the proper way of dealing with it. In order to get the honey from the cells, cut them across, and afterwards chop them into small pieces; put the pieces into a conical bag, and hang up before a warm fire, and the honey will exude. 2. Preparations should be commenced for wintering as soon as the heather honey is over in your neighbourhood. 3. Winter passages should be ¾ in. in diameter, about 4 in. from the top. 3. Not after the heather harvest is over. 4. The terms and privileges of membership of the B. B. K. A. may be found on the back cover of the *Hand-book*. 5. Your experience with sugar is different from that of most bee-keepers.

Rev. T. Slevan, *Thirsk.—Extracting Heather Honey.*—See reply to W. T. We have forwarded your letter to Mr. Huckle, Secretary of the British Bee-keepers' Association, who will be pleased to give you the information you desire.

E. D'O.—*Different Honey collected by neighbouring Hives.*—It is not an infrequent case that hives of the same kind of bees, situated within a few yards of one another, collect honey of different colour and consistency at the same time of the year. *Heather Honey.*—See reply to W. T.

Amateur, *Wilnesham.*—1. No; to any good judge. Most prefer the honey not crystallised. 2. Only to the three weakest. 3. If syrup is properly made it will keep for many months in the vessel you name. 4. You may do so; but if you can remove the less valuable it is preferable.

A. H. E.—*Flowers suitable for Bees for early Spring flowering.*—Arabis albida; Aubrietia Græca; Wall-flowers; Limnanthes Douglasii; Lonicera fragrantissima; Laurustinus; Andromeda floribunda; Mahonia aquifolia; Helleborus niger; Helleborus orientalis; Tussilago fragrans; Eranthus hyemalis (or Winter Aconite); Crocus; Anemone blanda; Scillas, bifolia and siberica; Cardamine rotundifolia; Erica carnea; Thymus serphyllum (Wild Thyme).

Mr. Frank Eccles, *Wakefield*, will find the above list useful to him; and if he refer to pp. 176, 177, Vol. X., he will find the more special information he requires in a clear, succinct, tabulated form, without the Latin names to which he objects.

Rev. G. R., *Malden.*—It would have been better had the flower and leaf of the plant been sent instead of the seed, because many plants have seed-heads similar to the one forwarded; but the specimen is probably of the plant Golden Rod (*Solidago Virgaurea*), which flowers in British woods during the summer months, producing bright yellow blooms, and which is of high value to bees. The *Gardener's Chronicle* of the 8th inst. says:—'At a recent monthly meeting of the Montgomery County (Ohio) Horticultural Society, the Rev. L. L. Langstroth, the inventor of the moveable-frame hive, recommended the planting of all waste places with the Golden Rod and the Wild Aster, the bees being so fond of these flowers that they will forsake almost everything else for them.'

P. Davis, *Putney.—Treatment of Bees.*—As your bees have increased so slowly since June as only now to cover three frames, either you have mismanaged them or the queen is old and worn out. The proper treatment would be to unite them to another stock, as they would be unlikely to survive the winter as they are. *Books on Varieties of Bees.*—You can derive much information on the foreign varieties of bees from *The Ligurian Queen Bee*, by the Rev. G. Raynor; *A Bee-keeper's Experiences in the East*, by T. B. Blow; and from the columns of the *B. B. Journal;* all obtainable from Mr. J. Huckle, King's Langley, Herts.

A. W. Waring.—*Wintering.*—1. The best way of wintering is to have the frames across the hives, and pushed back by a division-board, which may be double, and filled with cork-dust, cutting an entrance way at one side, *i.e.*, one end of the division-board. Leave the main entrance wide open, thus the wind entering the main entrance, does not blow into the chamber in which are the bees, but circulates in the ante-chamber and under the roof, tending to carry off any vapour which might otherwise condense. Remove all frames not covered by bees and place a cork-dust cushion or a wooden tray filled with cork-dust on the piece of ticking which covers the frames. Whatever you place over the frames should fit them closely, to confine the heat. Cut holes about ¾ inch in diameter through the combs about four inches from top to allow the bees access from one to another. 2. 2. *Presence of Queen.*—Unless you are feeding your bees or they have access to heather or some source of honey, you would not be likely to find eggs now. By all means assure yourself of the presence of the queen before wintering. If you cannot find her feed very gently for a week, and then look for eggs. If you do not then find eggs or queen you may conclude there is no queen. If that should be the case you must either unite to another stock or purchase a queen.

S. H. W.—*Winter Treatment.*—The candy is Mr. Hewitt's system; probably it will be safe for you to try the syrup. See letter on 'Winter Feeding' by 'Amateur Expert.' Give as few whole sheets of foundation as you can crowd them on—not more than four—and consult 'Driven Bees' in 'Useful Hints.'

S. C.—A little perseverance will enable you to overcome your difficulty.

MELLARIUS.—*Queen not observed.*—We cannot conceive the ease of a cast issuing from a hive three times unaccompanied by a queen. Had it been as supposed, there would have been some visible signs of queenlessness. Sometimes queens are of diminutive size, and it is within the range of possibility that your queen has somehow eluded your observation.

E. M., *Wexford.*—*Weeping Sections.*—If kept in same temperature as when on the hive, or if left on sufficiently long to get doubly sealed, they would not weep. This latter does not improve the appearance for show purposes, but is much best for store. The season now being late, with food scarce, the danger is that the bees would unseal and carry it down into body of hive. You might try coating over the cells with melted wax.

J. PERRY, *Banbury.*—In the first place you acted injudiciously by talking to the judge on the subject before he made his award. Undoubtedly the queen should be the mother of a greater portion of the bees exhibited, but we are not in a position to call in question the decision of any judge, and advise you and all discontented exhibitors to make a straightforward complaint to the Secretary of the Association under which the shows are held, in preference to making any unpleasantness in the show when you have any reason, real or imaginary, to differ from the award of the judge.

E. C. LANDER, *Bath.*—Your condemned bees will require (supposing the bar-frames were not furnished with ready-built comb) at least 30 lbs. weight of syrup to each stock. Do not give it too fast, or they may store too much in the new combs, which may break down—about 1 lb. or 2 lbs. a-day is enough. With such a large population as you have stocked them with, they should turn out well. Advise your poorer neighbour to do likewise.

J. ISHERWOOD.—There is no noticeable difference between the first and second editions of Mr. Cowan's *Guide-book*, but in the third there are considerable alterations and numerous additions, and many portions of it have been re-written. It would be desirable that the editor of the *English Mechanic* should be provided with a copy of the third edition.

A COTTAGER, *Cambs.*—As apiculture is engaging the attention of more minds at present than at any previous time, it need not be a matter of surprise that there should be a difference of opinion on some matters. There is, and will be, progress in bee-keeping. The work you mention, *Modern Bee-keeping*, may be taken as an example. If you compare the first edition with that recently issued, the progress in apiculture would be at once apparent. Periodicals, by reason of their mode of publication, should be in advance of books, their province being to propagate and ventilate the opinions that are ever occurring to thoughtful minds. Books in their turn follow after, solidifying the ideas and experiences to be found in periodicals, retaining the proved and rejecting the crude.

S. ATKINSON, *Harrogate.*—If the hives are all strong it would be better to keep the three hives, feeding with care any of them that may require it to the requisite weight. If you are disposed to unite the stock and the cast take the queen of the stock away, the queen of the cast, being young and healthy, will prove of greatest service in the coming time.

ANON.—Continue feeding; if you use candy place in on top of frames. 2. See 'Useful Hints.' 3. If not transferred at once, it would be desirable to wait for the spring. It is getting late, and transferred stocks find it difficult to have their hives in order for wintering, and we know not how soon we may have a nip of cold weather.

L. N. S., *Blackheath.*—1. *Bees not entering Supers.*—Your bees would not enter supers while they had, as no doubt was the case, plenty of room in the stock-hive in which to store what honey they gathered. It was not exactly a mistake to super them, as you could not know honey would be scarce with you. 2. *Supering.*—As you rely upon fruit-blossoms for filling your supers, by no means attempt to divide in April, but, by early stimulative feeding, endeavour to have your hives crammed with bees and hatching-brood by the time the blossoms open; then put your supers on. 3. *Honey Harvest.*—53 lbs. was a very fair harvest for you to obtain, especially if your bees are at the suburban address which you give. 4. Yes, smaller space is created on the area of the frames, and is more easily filled and kept warm by the bees.

QUÆSITOR.—1. *Driven Bees.*—When driven bees are well shaken together they become of one scent, and will not fight, even when introduced to combs formerly belonging to part of them. 2. See reply to A. W. Waring. 3. *Keeping Combs.*—Drain out the unsealed honey so far as you can, and keep the combs in a dry and airy place, where mice cannot get to them. If sprayed with solution of salicylic acid it will tend to prevent mould. The sealed honey will keep well. 4. *Stimulative Feeding.*—Stimulative feeding is advisable both in autumn to obtain young bees which shall be unworn in the spring, and again in spring, that the queen may commence to lay earlier, and so get a large population by the time there is honey to be gathered. 5. *Glass in Hives.*—You would do well to put a wooden side between the bees and the glass. C. Three or four. See No. 2.

A. H. E., *Portumna.*—1. If the skeps without the floor-board weigh from 20 to 25 lbs. they ought to pass through the winter safely. 2. Good wheaten straw will be suitable for thatching skeps. 3. The grubs taken out by the bees were drone larvæ; this is no indication of scarcity of food in the hive.

WALTER SPURRELL.—The bees in the skeps had either balled both queens for some hours, or other bees were robbing, which caused the excitement. The fact of the bees carrying pollen would indicate that the queen was breeding; if so, the other is dead. If you invert the hive in the course of a few days, and blow smoke between the centre combs, you will probably be able to see if there is any sealed brood. Meanwhile, take every caution to prevent robbing. The bar-frame hives we should unite on six frames if possible, destroying the old queen, unless you have ascertained the skep to be undoubtedly queenless in the meantime, when she could be used as you suggest. You may, by driving, find out whether the skep is queenless or not.

G. R., *Diss.*—It affords us very great pleasure to find our 'Hints' prove useful to any of our readers. You should remove your hives side by side by degrees, a little each fine day, until the ten form five couples, with a little space between each couple. If you simply add peppermint, or any other scent, to the food you are giving them, you will then be able to lift the best frames from each hive into one, removing the queen you least prize from each couple, and after seeing all the bees are out of the hive you intend to remove you should take it away at once, and all the spare combs—the best of the combs you do not require—may be used again next year, if you winter them in a warm place, about 60° F., and keep them free from wax-moth and other vermin. If your queens were laying, they will probably keep so while you are giving food; but if they have ceased, you will doubtless find food will not start them again as the weather is so unfavourable; but you need scarce regret that considering you are uniting, which will have a most beneficial effect. You cannot well give too little room, as they are soon thinned by deaths. You can scarce handle your bees without using some smoke, but only use as little as absolutely possible at any time.

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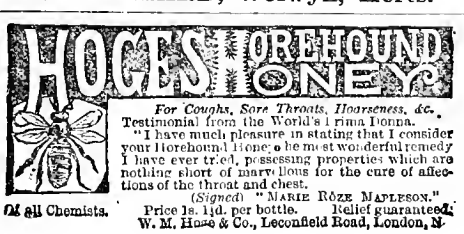
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Editorial, Notices, &c.

OCTOBER.

We have come round again to that last quarter of the year in which bees should be most quiet, but those connected with Bee-keepers' Associations should be most active. Now is the time for arranging lectures to spread a knowledge of bee-keeping, and meetings to make the objects of Bee-keepers' Associations more fully known. Now, also, is the time to review the work of the past season; to commence the preparation of the balance-sheet, and to consider what ought to appear in the Report for 1883. That it has been a satisfactory season few will, I think, be prepared to admit. The most we can say is, that the English counties appear to have been more favoured than those of Scotland, where the autumn heather harvest has yielded next to nothing. Bee-keepers, however, are not easily daunted, and they trust that years of plenty must sooner or later succeed those of scarcity. Whenever we are blessed with another really warm summer, the pains and money spent upon bee-keeping will certainly reap most abundant fruit. We have all the machinery ready for the ingathering and the disposing of an abundant harvest, and we are waiting patiently for that abundance to manifest itself. At present the County Associations seem to be able to provide a ready market for all the honey which their members have to dispose of, without requiring a Metropolitan depôt into which to pour their overflowings. But let us have but one really good season, and the demand for a honey market in London is sure to make itself heard again.

That bee-keepers are not daunted appears from the fact that several of the counties which have been backward in organizing Bee-keepers' Associations are now beginning to bestir themselves. With the month of October the note of preparation is sounded from Nottinghamshire, Gloucestershire, and more than one of the Welsh counties, and these all look to the British or Central Association for advice and assistance.

Every one is pretty well aware that the Central Association has this year sustained a heavy loss upon the two Shows held at Bridgewater and at Knightsbridge; and though the prompt and generous action of the President and the Committee has relieved it from any financial pressure, its operations must, for some time to come, be conducted with the strictest regard to economy, and it will be necessary to make some readjustment of its relations with the County Associations. Some are of opinion that the Central Association has done too much for the County Associations. A great deal of money has no doubt been spent in establishing and developing the thirty-four Associations which now exist in the Southern and Midland counties of England; but in no other way, we believe, could the cause of bee-keeping have been so successfully promoted, or such a rapid advance have been made, in spreading the knowledge of the art. As we have before said, one favourable season would show the public how much really good work has been done. We trust, therefore, that though the Central Association cannot afford to be so liberal towards its daughters for the future, it will not deviate from the policy which it has initiated of endeavouring to establish a Bee-keepers' Association in every county of England and Wales. Some counties may be able to establish Associations by their own exertions, without any helping hand being extended to them; but in the majority of instances this will not be the case, and the Central Association will have to set the ball rolling for them. County Associations which are already fully developed should begin to turn their attention to giving increased support to the Central; for though two unproductive Shows may be the immediate cause of an enforced economy, it is nevertheless certain that the pressure would not have been so severely felt if the Central Association had not impoverished itself by giving life and strength to its children. Æsop's old fable of the Belly and the Members should be impressed upon their minds as much as possible.

An appeal will shortly be issued to the members of the Central Association, urging them to increase their subscriptions. In some cases this has been done by members of their own accord.

KNIGHTSBRIDGE SHOW.

The following Judges' Reports of the Show at Knightsbridge have come to hand:—

CLASSES 11, 12, 13, 14, 26, 27, and 28.

Class 11.—In this class for the best straw hive for depriving purposes with or without bars, cost to be taken into consideration, price not to exceed 5s. No. 61 was absent, No. 62, a straw hive with a flat wooden top and floor-board, was awarded the first prize. No. 63, being a straw hive, made flat on the top, and shown without a floor-board, but with a case of sections, was put second,

it being considered that the terms of entry excluded the case of sections.

Class 12.—In Class 12, for the best and cheapest Stewarton hive, there was only one entry, and though it therefore met with no competition it was considered a thorough good specimen of that style of hive, and worthy of the first prize.

Class 13.—Adjoining this fine Stewarton pile of no less than eight separate stories were the classes for supers, the first being Class 13, for the neatest and best rack containing 1 or 2-lb. sections with separators prepared for placing upon a frame-hive. Here there were nine entries, of which, however, two were absent. The first prize was given to No. 71, an arrangement of three separate boxes, each containing seven sections placed over queen-excluding zinc; these were of excellent manufacture, though there was some unnecessary expense with peep-holes and fittings at each end. The second prize went to No. 70, and third to No. 67. The judges regretted that they had felt obliged to exclude Nos. 65 and 66 from a chance of the prizes, for the reason that there were no guides in the sections, considering, therefore, that they failed to comply with the terms of entry; had there been guides the prizes might probably have been differently awarded, for both these entries were of excellent make.

Class 14.—Then followed Class 14 with nine entries for the best rack of sections for cottagers' use, prepared for placing on a straw skep. In this class all the exhibits but one were provided with a roof to protect the sections. There was one exhibit, No. 78, a very good one, but unfortunately it had been shown without any guides in the sections, and was therefore out of the running. The first prize was given to one on much the same principle, No. 82, the case being extended downwards to give considerable protection to the hive; the second prize went to No. 77, and the third to No. 76. There seemed to be no special novelty for section crates exhibited this year.

Class 26.—In the class for thick comb-foundation, Class 26, there were seven entries, but Nos. 191 and 193 were absent; the remaining five were all of very good quality and make, No. 190 secured the prize, a foundation with natural bases and very thick walls.

Class 27.—For the best thin foundation in Class 27, of five entries two were absent. No. 194 with natural base at 2*s.* 9*d.* per pound, which obtained the prize, was of most excellent quality and make.

Class 28.—There was only one entry for the best, cheapest, and simplest appliance for making comb-foundation, namely, No. 199. This made some very good foundation on the first day of the show, and was awarded the bronze medal.

CHARLES E. FLETCHER.
H. BOSTOCK.

CLASSES 16, 17, 22–25, 29, 32, 33, 36.

The judges for classes 16, 17, 22, 23, 24, 25, 29, 32, 33, and 36, were very pleased with both the number and quality of the exhibits, there being a great improvement since last year, some of the classes being exceptionally good considering the earliness of the show.

Class 16, for supers, not sectional, being either of wood, straw, or wood in combination with glass or straw, the prize winning supers were very good.

Class 17.—Glass supers were fairly well filled, the first prize being awarded to an exhibit weighing 48½ lbs., the honey being of good quality.

Classes 22–25.—The run-honey in these classes was all that could be desired, the golden nectar being entirely free from pollen and all impurities, and the competition was very keen in Classes 23 and 25.

Class 29.—For the best super for cottagers, not being sectional, the exhibits were fairly good, the first and second prizes being awarded to two very large bell-glasses.

Class 32.—In this class the run-honey was of so good a character, and such keen competition, that the judges were obliged to recommend an extra prize to be given. This class plainly shows that the cottagers understand the way of taking their honey without getting it mixed with impurities.

Class 33.—There was no exhibit; and in Class 36, there being only one, but that of such good quality, it was awarded first prize.

WILLIAM HILL DUNMAN.
CHARLES W. A. FEILDING.

CLASSES 38, 39, 43, and 44.

Class 38.—In Class 38, for the best and largest collection of hives and bee furniture most applicable to modern bee-keeping, no two articles to be alike, there were three competitors, and a very fine exhibition they made, adding largely to the general interest of the show. No. 255 was awarded first prize, being run very hard by No. 254, the second prize collection. No. 256 was awarded the third prize: the judges understood that part of this collection had been delayed in transit, and had not arrived at the opening of the show.

Class 39.—In Class 39, for the best honey extractor, there were ten entries; four, however, of these were not for competition: namely, Nos. 260, 261, 262, and 263. The first prize was given to No. 259, which was neither more nor less than 'The Rapid,' brought out some years ago by Mr. Cowan; the second prize went to No. 266, an extractor on the same principle, as was also No. 258, which took the third prize. No. 257 was on the principle of two of Abbott's Little Wonders, revolving inside another can, but the judges considered that the large expanse of galvanised iron of which the outer case was made was objectionable, as was also the use of wood for the spindle and cover. Among those not for competition were Mr. Cowan's 'Rapid,' which, as will appear above, practically carried off all three prizes, being copied and shown by various exhibitors; also Mr. Cowan's latest production, that carried off the prize on former occasions, in which the comb-cages are reversed on reversing the handle.

Class 43.—For any new invention calculated, in the opinion of the judges, to advance the culture of bees, there were fifteen entries, but four were absent, and three not for competition. The judges made no award in this class, considering that among those for competition there was nothing of sufficient merit. Of the three entered not for competition two were quite new, and exhibited much thoughtful ingenuity. No. 290 was for ripening honey, the honey flowing over a surface of fourteen square feet, heated by hot water maintained at boiling point by a lamp and boiler; the warming surface was divided into six trays: the honey travels along a distance of about seventy-five feet run, at a slow rate: and for any one with a large lot of extracted honey this machine should effect much saving of time, permitting the honey being extracted before it is sealed over. No. 291 shows an ingenious plan of quickly making numbers of Cheshire rakes; and No. 292 was a wax extractor, to be heated by means of the sun, being a double case, each covered with glass to store up the heat derived from direct sunshine, the cases being a dead black, with black cloth below it, and a zinc tray and perforated basket inside the inner case. The judges were assured that a temperature of 230° Fahr. could be obtained by means of this apparatus on a bright, sunny, summer day.

Class 44.—There was only one exhibit in Class 44—an apparatus, for cottagers' use especially, for catching the queen in driving without looking for her, but no award was made to it.

CHARLES FLETCHER.
P. H. PHILLIPS.
J. WALKER.
J. L. SISSON.

BEE-KEEPERS AT HOME.

No. III.—Mr. Alfred Neighbour at Regent Street, London.

In continuation of our series of biographical sketches we next offer our readers a memoir of Mr. Alfred Neighbour, who was born in High Holborn, London, on the 24th of October, 1825. He is the son of the late Mr. George Neighbour, and a member of the well-known firm of Geo. Neighbour & Sons. His father established the business in Holborn about the year 1814; and in 1824 Mr. Thomas Nutt, of Moulton Chapel, Spalding, Lincolnshire, inventor of Nutt's collateral and other hives, offered him the agency for the sale of these appliances.

It may be remarked, in passing, that, as far back as 1779, Holborn was noted for bee-hives, from the circumstance that Daniel Wildman had a bee and honey warehouse at No. 326 Holborn, a few doors east of Chancery Lane, so that when Mr. G. Neighbour accepted the agency the business of an apiarian returned to a locality of honeyed fame.

Wildman kept bees on the roof of his house, and a tradition still exists that this practice is now followed at Messrs. Neighbour's, which is only occasionally resorted to when stocks or swarms are being transported from one part of the country to another, and require a temporary release from confinement.

In 1827 Mr. Nutt published the first edition of his work entitled *Humanity to Honey-Bees*, which ran into the seventh edition. Mr. Nutt was in the habit of periodically visiting his patrons in the neighbourhood of London and of giving practical instruction in the management of his hives. In many instances he was requested at the close of the season to deprive the hives of the stores therein collected. Mr. Alfred Neighbour not unfrequently accompanied him on these excursions, and witnessed his fearless manner of manipulating with bees (totally regardless of stings), and thus in very early life acquired a taste for apiarian pursuits.

For many years a public apiary was kept up by Mr. Neighbour in the Zoological Gardens, Regent's Park. The hives were originally Nutt's; at a later period the Unicomb and other transparent hives were substituted, which proved to be more attractive to visitors. These excited considerable interest, and were by no means the least valued objects in the Gardens. The Royal princes and princesses were accustomed when children to pay frequent early morning visits to the Gardens, and the bee-house came in for a share of their attention. On one of these occasions Mr. A. Neighbour was fortunate to be at the apiary, and had the honour of pointing out to them the queen-bee, and explaining the mode of working the hives. This apiary was pulled down to make room for the large monkey-house, and the Council of the Society have not seen their way to erect another bee-hive house in its place.

The Great Exhibition of 1851 offered the first opportunity for the competitive display of hives. Side by side with the late Mr. John Milton, of No. 10 Marylebone Street, Wimpole Street (who was at this time an apiarian and vendor of hives and bee furniture of some repute), Messrs. Neighbour exhibited living bees in glass hives and a collection of bee furniture.

The position accorded was a grand one. In the north-east gallery, under the noble transept, which owed its formation to the presence of two fine trees that stood on the chosen site in Hyde Park which were not allowed to be cut down, and in order to accommodate them Sir Joseph Paxton designed the glass dome roof and covered them in. They added greatly to the beauty of the interior of the building, and being near the bee-hive exhibits, lent a charm which will not soon be forgotten. At no subsequent exhibition has such a post of honour been given to apiarian displays.

It was at this exhibition that a French exhibitor, M. Debauvoys, was awarded the first prize for his vertical frame-hive. This was the earliest frame-hive brought to this country, excepting Huber's leaf-hive, which differs in construction from that technically known as a frame-hive. The moveable-comb hives then constructed in England were those of Dr. Bevan, Mr. Golding, and Mr. H. Taylor, which had top-bars only. The combs had to be severed from the sides of the hives whenever required to be drawn out and inspected. The success attending the Great Exhibition of 1851 induced other International Exhibitions to follow; and at those held at Dublin in 1853 and 1865, at Paris in 1855, and again in 1867 and 1878, Mr. Alfred Neighbour personally attended with living bees in glass hives and collections of bee-furniture of all descriptions. He has also attended, and his firm have received awards, at all the shows of the British Bee Association, as well as at those held under its superintendence and at many affiliated Associations in the country. The grand show of the Caledonian Apiarian Society at Edinburgh in 1877, held under the auspices of the Highland and Agricultural Society, must not be omitted. It was at this show that Messrs. Neighbour were awarded the large silver cup for the best miscellaneous collection.

In the year 1852, opportunity occurred of becoming possessed of the old-established business at 149 Regent Street: and Mr. A. Neighbour, on taking up his quarters there, added the hive and honey trade which, as has been stated, had for so many years been carried on in Holborn.

Soon after the first Great Exhibition, Mr. A. Neighbour became more intimately acquainted with Mr. Henry Taylor, author of the *Bee-keeper's Manual*. This work was published in 1838, and consisted of 78 pages. It went through six editions, each volume as it issued being larger than the former, until the sixth edition contained 220 pages. It was a work much read at the time, and stimulated many to commence bee-keeping. Our late lamented friend, Mr. J. G. Desborough, was one who was thus worked upon, and was frequently heard to say that he was first induced to enter upon the pursuit by reading this descriptive little treatise of Mr. Taylor's, who he was afterwards somewhat surprised to find held the post of a cashier in the counting-house of a London brewery.

Mr. Taylor originally kept bees at his residence at Highgate, but in subsequent years, on his retirement from active service in the brewery, he resided at Islington, where there was no convenience for his following his favourite hobby. It was, nevertheless, a delight to him to be planning improvements which he thought would conduce to the well-being of his little favourites. Many of these plans he was accustomed to discuss with Mr. A. Neighbour and suggested their trial at his apiary at Dorking (where Mr. George Neighbour, having become released from business, resided for some years), thus affording his son more opportunity of carrying out practical bee-keeping. Mr. Taylor was for many years on the recognised staff of contributors on apiarian matters to the *Cottage Gardener or Journal of Horticulture*: and on one of his social visits to Mr. Neighbour, the offer just then made by Mr. Hermann, in Switzerland, to send over a Ligurian queen-bee to be placed under his directions at the head of an English stock, was discussed. The proposal was so novel and the whole affair so different from the then known style of bee-keeping, that Mr. Taylor asked permission to make an extract from the letter and place it before the readers of the Journal referred to. Accordingly, in the next weekly issue in July 1859, this announcement appeared which, among others, attracted the notice of Mr. Woodbury who wrote to Mr. Hermann —whose address was given—for a queen-bee, which arrived at the same time as the one Mr. Neighbour had requested to be sent, and for which Messrs. Neighbour received payment, Hermann having appointed them his agents. Mr. Woodbury successfully joined his queen to an

English stock. With a second batch of queens, the Rev. Mr. Scott, of Sibertswold, Kent, also received one which he was fortunate in placing at the head of a stock. This, then, was the commencement of that new era in bee-keeping which the introduction of *Apis Ligustica* has brought about; and with the introduction an acquaintance sprang up between Mr. Woodbury and Mr. Neighbour, which continued until his lamented death, which occurred at his residence, Mount Radford, Exeter, on the 26th of July, 1870, in the fifty-second year of his age. Notwithstanding there was some little difference of opinion as to whether, in the face of the foregoing facts, Mr. Woodbury was entitled to the *entire* credit of having first brought this important new comer to the notice of British bee-keepers, it was not allowed to interrupt the cordial friendship which existed.

(*To be continued.*)

ASSOCIATIONS.

SOMERSET BEE-KEEPERS' ASSOCIATION.

The Somerset Bee-keepers' Association intend to have a little hive and honey show on Friday, Oct. 12th, in connexion with the Jubilee Exhibition of the Yeovil Agricultural Society. After having remained in a sleepy condition for some years, so far as bee-keeping is concerned, the men of Somerset are now waking up. Several shows and manipulations have been held in the shire during the past few months. In addition to the Bridgewater meeting, Yeovil, Banwell, Stoke Courcy, and other places, have been roused to exhibition pitch, and the result has been the accession of a considerable number of new members, with the promise of still better things to come. Not content with reaching the florists and cottage gardeners, the new hon. sec. for Somerset, the Rev. C. G. Anderson, aims at introducing modern bee-keeping to the farmers also, as will be seen by an advertisement in another column. May his efforts be crowned with success! Intending exhibitors will do well to note that entries close on Oct. 10th.

BRECKNOCKSHIRE BEE-KEEPERS' ASSOCIATION.

The second annual show of the Brecknockshire Bee-keepers' Association was held at Brecon on Thursday, 13th Sept., in connexion with the County Agricultural Show, of which it now forms a striking and important part. The Association has made great progress since last year, the number of entries being many more this year. Nearly four hundredweight of honey was exhibited, almost all of it of first-rate quality. There is no doubt that a great future awaits the Association in this county, as even in this generally unfavourable year the amount and quality of the honey exhibited was beyond the average. It is rarely that so young an association can produce so large a show of first-class honey. In this beautiful county of hills and valleys, each with its limpid stream, abundance of bee pasture is to be found at all times, and it requires no great effort to believe that if bee-keeping is carried on as successfully in the future as it has been for the last two years in this county, we shall soon be able to supply the amount now furnished us from abroad. The cottagers are taking up the matter with great interest, and a marked improvement is seen in their treatment, of honey and wax.

A new feature in the show this year was the raffle for hives, open to all exhibitors residing in the county. These prizes were given by Mr. Flower, the member for the borough of Brecon. There is no doubt that several persons were induced to exhibit with the hope of securing one of these prizes. We recommend the idea as likely to be an attraction in other places.

Mr. Blow was the expert who attended to manipulate and lecture upon bee-keeping. He brought down a very fine show of bee appliances of all sorts, amongst other things being his Anglo-Cyprian hive and a Stewarton hive, both of which attracted considerable attention. Mr. Blow's lectures were well attended, but, owing to the presence of many thousands of strange bees who, no doubt, were attracted by the quantity of unprotected honey, the driving was not so successful as usual, as the robber bees immediately took possession of every particle of comb or honey. Two of the driven swarms, too, were taken out of small houses resembling Noah's ark, from which it was very troublesome work to expel them. On such occasions it is desirable that straw-skeps only should be used for driving.

Nearly one hundredweight of the comb-honey was in the form of bars, the greater part without any protection. It is desirable to make some rule in future, either that the comb-honey shall be in the form of sections, or else that the bars shall be brought to the show well protected. Nearly the whole of the honey from the three skeps driven was either robbed by bees or spoiled by the attempt to keep them out. The robbers were chiefly Ligurians, who were said to have come from the apiaries of certain clerical members. The experience with Ligurians in this neighbourhood so far is not favourable, none of the honey show being the produce of Ligurians, although several of the exhibitors keep Ligurians. They appear to be very prolific, but do not store much honey. Though, no doubt, more gentle than the black bees, they certainly, so far, do not seem so well suited to store honey in this part of the country. It has been remarked that during the last week or two they have perhaps stored more than during the summer.

One of the chief exhibitors was Mr. Kettle, the master of the Brecon workhouse, who although only a beginner exhibited upwards of forty bars of honey, for which he obtained second prize. Mr. Kettle also exhibited on a mound adjoining the tent a model bee-cottage of two stories, well slated and glazed, with water troughs and downcasts, &c.; the walls were covered with rough-cast to stand the severest weather. The entrance for the bees was under the front door; a balcony ran round the cottage, in which were small pots with real flowers. By an arrangement at the back admittance was gained to insert two rows of full-sized bars, and a frame of sections. The design attracted considerable attention. Mr. Kettle bids fair to solve the great question of the day as to what we are to do with the infirm poor, who are now shown at the workhouse a means of livelihood within the reach of many who are disabled from hard manual labour.

Considerable attention was deservedly paid to the beautiful 2-lb. sections, shown by Mr. Wm. Evans, for which the B. B. K. A.'s silver medal was awarded. On the whole the show was a decided success and a great improvement on the preceding one.

The following is the list of prizes awarded:—

For the best collection of hives and bee-furniture: 1st, T. Blow. Honey (special prizes given by B. B. K. A. to residents in Breconshire), best 1-lb or 2-lb. sections: 1st, silver medal, Wm. Evans; 2nd, certificate of merit, Rev. J. J. Evans. For the best super of honey other than sectional super: 1st, Mr. Kettle. For the best collection of comb honey from one apiary: 1st, Wm. Evans; 2nd, Mr. Kettle; 3rd, Rev. J. J. Evans. For the best collection of extracted or run-honey, produce of one apiary: 1st, Rev. J. J. Evans; 2nd, Rev. H. Williams; 3rd, Wm. Evans. *Cottagers*—For the best collection of comb-honey: 1st, Mrs. Jarman. For the best collection of run-honey: 1st, Mrs. Pritchard; 2nd, Mr. Richards; 3rd, Mrs. Price; 4th, Mrs. Kate Price. Wax.—For the best sample of pure wax: 1st, Mrs. Williams; 2nd, T.

Blow; 3rd, Mrs. Jarman. Mrs. Williams, of Llanfillo, won the prize bar-framed hive given by Mr. Cyril Flower to be raffled for by all exhibitors in the honey classes resident in Breconshire; and Mrs. Jarman the straw-hive and apparatus given by Mr. Flower for the best collection of comb and run-honey shown by a cottager resident in Breconshire. A special prize of 10s. was assigned to Mr. Kettle, for his ingenious model of a bee-cottage.

SUFFOLK BEE-KEEPERS' ASSOCIATION.

The fourth Annual Show of the Suffolk County Association was opened on Tuesday, the 18th Sept., at the Old Museum, Ipswich, and continued open four days, an opportunity being thereby offered to all classes of paying a visit to the show, and of making purchases at the honey fair connected therewith, of which numbers availed themselves, the weather being most favourable during the whole period.

Of all the County shows we have visited, this carries off the palm, so far as honey is concerned. We were astonished at the quantity exhibited, more especially in the comb-honey 1-lb. section classes, and the entries of extracted. The quality was simply superb, the brilliant light amber colour and transparency of the prize sections, together with the mild aroma of the plants and flowers from which the nectar had been obtained, left nothing to be desired. Indeed, there was scarcely an inferior exhibit in the whole exhibition, if we except a few specimens of the late gathered heather variety.

One feature we cannot forbear to notice. On a large bench, at the further end of the spacious and well-lighted room—most excellently adapted for a show of this kind—was an extensive display of comb and extracted honey, from the apiary of one gentleman, labelled 'Not for competition.' On inquiry we found that this extraordinary exhibit was sent by the Rev. R. A. White, of St. Peter's Vicarage, Ipswich. It consisted of 286 lbs., chiefly in 2-lb. sections, and extracted, and was a part only of the product of four hives, the entire surplus during the present season having reached the high figure of 360 lbs.—an average of 90 lbs. per hive. If this can be accomplished in a populous county town, what may not yet be effected in our more highly favoured country districts! The largest amount taken from one hive, Mr. White informed us, was 160 lbs., in 2-lb. sections, and this was from an Italian stock. Of the entire quantity of 360 lbs., the comb-honey formed a large proportion—viz., 284 lbs. in 1-lb. and 2-lb. sections, and 74 lbs. of extracted.

Having been present at the first Suffolk County Show four years ago, in comparing the meagre exhibition of honey of that year with the present magnificent displays, we were led to augur great things for the future of apiculture in this country, and while sincerely congratulating the central and parent Association on the great and successful work she has already carried out, in establishing thirty-four of these County Associations, to wish her the liberal and earnest support she so amply merits, but which unfortunately is accorded with so grudging a hand.

In Class 13, for 12 1-lb. glass jars of extracted honey, there were no less than 33 competitors, and in three other classes the numbers were 13, 14, and 15.

The whole arrangements of the show were admirably carried out by its indefatigable Secretary, Mr. H. Kerridge. The gentlemen who undertook the onerous task of making the awards were the Rev. G. Raynor, of Hazeleigh, Essex, and Mr. J. M. Hooker, of Sevenoaks, Kent. Appended is the prize list.

Hives, &c.—Best collection of hives and bee-furniture—1, Mr. S. J. Baldwin; 2, Messrs. A. Wrinch and Sons, Ipswich. Best hive for observation purposes, presented by the Mayor of Ipswich—1, Mr. C. N. Brooks, Mistley; 2, Mr. S. J. Baldwin. Neatest and best rack, containing 1 or 2-lb. sections—1, Mr. J. Lee, Bagshot, Surrey; 2, Mr. S. J. Baldwin. Most economical, best, and cheapest hive on the moveable-comb system—1, Mr. J. Lee; 2, Mr. S. J. Baldwin; 3, Mr. G. Stothard, Welwyn, Herts. Best pair of honey-jars,—1, Rev. R. A. White, St. Peter's Vicarage, Ipswich; 2, Mr. J. A. Smith, Akenham.

Honey.—Best 12 2-lb. sections of comb-honey, the silver medal of the British Bee-keepers' Association, Rev. F. Page Roberts, Seole. Best 12 1-lb. sections—1, Mr. E. Blowers, Great Oakley, Essex; 2, Mr. J. A. Smith; 3, Rev. E. Farrer, Bressingham, Norfolk; 4, Mr. A. H. Cobbold, Claydon, Ipswich. Best 6 2-lb. sections—1, Mr. J. M. Hooker, Sevenoaks, Kent; 2, Mrs. Harris, Tattingstone; 3, Mr. J. M. Hooker; 4, Mr. C. Hitchcock, Bramford. Best 6 1-lb.—1, Mr. E. Blowers; 2, Mr. C. N. Brooks; 3, Rev. R. Morphey, Hessett; 4, Mr. A. Harwood, Belstead. Best super of honey, sections excluded—1, Mr. R. Rix, Waldringfield; 2, Mr. R. Rix; 3, Mr. E. Blowers; 4, Mr. E. Blowers. Best 12-lb. 2-lb. glass jars of extracted honey—1, Miss Waller, Waldringfield; 2, Rev. F. Page Roberts; 3, Rev. R. Morphey; 4, Mr. E. Blowers. Best 12 1-lb. glass jars—1, Miss Waller; 2, Mr. E. Blowers; 3, Mr. R. Rix.

Wax.—Best specimen of wax—1, Mr. R. Rix; 2, Miss Waller. Best sample of comb-foundation, with appliance for making the foundation—Mr. S. J. Baldwin.

Bee Flora.—Best collection of bee-flowers—1, Mr. E. F. Gooding, Witnesham; 2, Mr. R. Rix.

Cottagers' Class.—Best cap of honey—1, W. Taylor, Bildeston; 2, C. Pollard, Hanghley; 3, H. King, Whitton. Best exhibition of run-honey in glass jars—1, C. Pollard; 2, A. G. Andrews, Hanghley; 3, C. Holland, Charsfield. Best exhibition of sectional supers—1, F. Jarrold, Belstead; 2, S. Clarke, Levington; 3, C. Holland.

DERBYSHIRE BEE-KEEPERS' ASSOCIATION.

The Derbyshire Bee-keepers' Association's Show is now one of the most interesting features of our (that is the Derbyshire Agricultural Society) annual show, and we must congratulate the Derbyshire Bee-keepers' Association and their energetic and courteous secretary, Mr. Edwards, both on the admirable exhibition of bees, honey, and the various appliances used in modern bee-keeping, and also on the way in which all the arrangements were carried out. This has been a somewhat disappointing season to the bee-keeper. For a short time there was a splendid run of honey, and hopes were high; but then the rain and cold weather came, and all were dashed. We were therefore agreeably surprised when we visited the bee tent on Wednesday afternoon, to find a really good show of honey. The judges in this department were, Mr. R. R. Godfrey (secretary of the Lincolnshire Bee-keepers' Association) and Mr. H. Yates, both of Grantham, the latter taking the place of the Rev. N. Ogilvy, who was unavoidably absent. Both these gentlemen are well known for their practical knowledge in all matters relating to bees, and we believe their awards gave universal satisfaction. In Class 1 there were three entries, and the prize for the best stock of bees in observatory hive was awarded to Mr. G. H. Coxon, the second to Mr. Handby, and the third to Rev. S. O'Brien. The last-named gentleman's exhibits met with an accident on their way to the show, or they would probably have stood higher. In Class 2 the competition for superior honey was very keen. There were no less than ten entries in the class for sections. Mr. R. Williamson showed a dozen really beautiful sections in a tastefully arranged stand. Mr. Handby and Mr. H. V. Edwards also had some capital exhibits. In the next class for honey in comb (bar, section, or comb), the produce of one hive, Mr. Potter had a well-filled glass super, good in colour

and flavour. Mr. W. Handby, the Association expert, was successful in taking the first prize for rare honey, of beautiful colour, and exquisite flavour; the second prize going to the Rev. S. O'Brien, whose exhibit was rather dark in colour, but very good in flavour. In the Cottagers' Class, for the best honey in comb (bar, section, or super), produce of one hive, the first prize was awarded to Mr. R. Williamson for a stand containing 40 1-lb. sections, all well filled, and of good colour. We considered this and the following class the most interesting in the exhibition, for they show how much may be done by cottagers, even in a poor season, by careful management, and we trust it may be an encouragement to others to go and do likewise. The competition for the best framed hive, price not to exceed 10*s.* 6*d.*, was very close, and the prizes were awarded after considerable deliberation. We had only one fault to find with this class, which was, that the hives (the prize-takers especially) were too good for the money. But, if the makers are content, we are sure the public will not grumble. The only entry in the class for the best frame-hive, made by a cottager, cost not to exceed 5*s.*, consisted of a really serviceable 'rough and ready' hive, the materials for which, the exhibitor informed us, cost 3*s.* 6*d.* In the competition for the best collection of bee furniture, Mr. W. Handby was again fortunate in taking first prize with a really admirable assortment of all the articles required by the modern bee-keeper; Mr. W. P. Meadows the second prize, and Messrs. Haywood third. Exhibitions of bee 'driving' took place at intervals during each day of the show, and were witnessed by a large number of visitors.

The awards were as follows:—

Honey.—Best stock of bees of any race, to be exhibited living with their queen, in observatory hives: 1, G. W. Coxon; 2, W. Handby; 3, Rev. S. O'Brien. For the largest and best exhibit of super-honey, the produce of one apiary during 1883: 1, Isaac Potter; 2, H. V. Edwards; 3, Rev. S. O'Brien. For the best twelve sections of honey: 1, R. Williamson; 2, H. Handby; 3, H. V. Edwards. For the best honey in the comb: 1 (the British Bee-keepers' Association's silver medal), T. Potter; 2 (bronze medal), S. Hawkins. For the best run honey in glass jars, not less than 4 lbs. to be shown: 1 (the British Bee-keepers' Association's certificate), W. Handby; 2, Rev. S. O'Brien.

Cottagers' Class.—For the best honey in comb: 1 (silver medal and 10*s.*), R. Williamson: 2 (bronze medal and 5*s.*), Mrs. T. Wotton. For the best run honey in glass jars: 1 (certificate and 10*s.*), G. Forster; 2 (certificate and 5*s.*), C. Fearn.

Hives.—For the best frame-hive, with arrangements for summer and winter use, price not to exceed 10*s.* 6*d.*: 1, W. P. Meadows; 2, George Stothard; 3, S. H. Howitt. For the best hive made by a cottager on the moveable-comb system, the work of an amateur. 1, George Forster. For the cheapest, neatest, and best super for harvesting honey in the comb; 1, W. Handby; 2, Thomas Austin. For the best collection of hives and bee-furniture, no two articles to be alike: 1, W. Handby; 2, W. P. Meadows; 3, Messrs. J. and G. Haywood.—*Derbyshire Advertiser.*

WARWICKSHIRE BEE-KEEPERS' ASSOCIATION.

The annual county show of the above-named association was held at Coventry, September 4th and 5th, in connexion with that of the Agricultural Society. The Association may be congratulated upon the great progress made in the county during the last few years, the show of this year being so far beyond any previous one. It may be particularly noted that the cottagers came forward, and received prizes for honey taken in sections without destroying the bees. They now begin to see that some profit may be derived from bees properly managed. The weather was all that could be desired, and the tents were visited by many thousands taking interest in the proceedings, some few adding their names to the Association. The prizes were given by Lord Leigh, and among those present were the Earl of Denbigh, Lord Newport, the Hon. G. Leigh, and Miss Leigh, C. Newdegate, Esq., M.P., and others. The Judges officiating were, the Hon. and Rev. C. Feilding, Rev. J. Sale, Messrs. Baldwin, Cordell, and Sells. A separate counter for the sale of honey was erected, at which a brisk business was carried on.

The following is a list of the awards:

Bees.—For the best stock of Ligurians or other foreign bees: 1st, J. Walton, Weston; 2nd, S. J. Baldwin, Bromley, Kent. For the best stock of English bees: 1st, S. J. Baldwin; 2nd, J. Walton.

Hives.—For the best and most complete hive on the moveable comb principle: 1st, Mr. Pengelly; 2nd, Abbott, Brothers, Southall; 3rd, S. J. Baldwin. For the best and most complete hive on the moveable comb principle, for cottagers' use: 1st, T. Stothard, Herts; 2nd, S. J. Baldwin. For the best frame-hive for general use, the work of an amateur or cottager, being a member of the association: 1st, J. C. Walton, Saltley College; 2nd, E. Field, Leamington; 3rd, — Clive, Barston.

Supers.—For the neatest and best rack containing 1 or 2-lb. sections: 1st, W. Danniels; 2nd, C. J. Harrison, Monks Kirby. Ditto, suitable for cottagers, to be exhibited ready for use upon a straw skep: 1st, Abbott, Brothers; 2nd, S. J. Baldwin; extra, T. B. Thompson.

Honey.—For the best exhibition of super honey from one apiary: 1st, W. M. Sells, Uffington, Stamford; 2nd, J. Walton; 3rd, Rev. J. Sale, Ledbury, Herefordshire. For the best twenty-four 2-lb. sections of comb honey: 1st, J. Walton; 2nd, W. Bennett, Stratford. For the best twenty-four 1-lb. sections: extra 1st, J. Burman; 1st, J. N. Bower, Knowle; 2nd, W. Bennett; 3rd, J. Walton. Ditto, 2-lb. sections of comb honey: 1st and 2nd, W. M. Sells. Ditto, 1-lb. sections: 1st and 2nd, W. S. Pridmore, Hinckley; 3rd, W. M. Sells. For the best super of honey: 1st, W. M. Sells; 2nd, T. Potter. For the best exhibition of run or extracted honey, not exceeding 50 lbs., in either 1-lb. or 2-lb. glass jars: 1st, W. S. Pridmore; 2nd, W. Sells; 3rd, Mrs. Leigh Spencer, Bedford.

Cottagers' Class.—For the best exhibition of honey in the comb, taken from one hive, without destroying the bees: 1st, T. Grosvenor, Knowle. For the best twelve 2-lb. sections of comb honey: 1st, P. Walton; 2nd, Mrs. R. Bennett. Ditto, 1-lb. sections: 1st, P. Walton; 2nd, Mrs. Bennett.

Miscellaneous.—For the best and largest collection of hives and bee-furniture: 1st, S. J. Baldwin; 2nd, T. Thompson, Birmingham. For the finest sample of pure bees'-wax: 1st, E. C. Walton, Muskham, Newark; 2nd, J. Walton.

Driving Competition.—1st, J. Baldwin; 2nd, J. Walton.

HEREFORDSHIRE BEE-KEEPERS' ASSOCIATION.

This Association, now in its second year, has been working hard throughout the season, with gratifying results, a considerable interest in bee-keeping having been awakened throughout the county.

The Association commenced the season with only a few shillings in hand, and about seventy members. In the spring eight lectures were given, chiefly in village schoolrooms, by Mr. A. Watkins and the Rev. J. Jones.

Two manipulating tents have been bought (and paid for), one full size, and of the best materials, the other of cheaper materials, with a 12-feet-square inner inclosure; this smaller tent being found very convenient at village flower shows.

Thirteen places have been attended with one or other of the bee-tents, the season being opened with a successful visit to the three-days show of the Herefordshire Agricultural Society at Abergavenny. The other places visited (chiefly Horticultural shows) were as follows:—Boyce Court, Colwall, Hereford, Castnor, Bodenham, Raglan, Rhayader, Radnorshire Agricultural Show at Penybont, Pandy, Bridstow, Kington (where the Annual Honey and Hive Show was held), and Much Marcle. The pecuniary results were satisfactory, only two visits failing to pay expenses, while the Association was singularly fortunate in the weather, the day being fine on every occasion.

Mr. J. R. Hole, the Association's certificated expert, conducted the manipulations at most of the shows, and one or other of the Hon. Secretaries (Rev. J. E. Sale and Mr. A. Watkins) lectured and answered questions, except at Bridstow, where Mr. J. Haywood attended on behalf of the Committee. On two occasions two shows were attended on the same day—Mr. Jas. Harper conducting the manipulations at one, Mr. Hole at the other. The Association has also arranged to send their expert on a tour to visit the apiaries of Members.

Bee Show at Kington.

The Annual Show of Hives and Honey was held at Kington, on September 13. The show of honey was good, about 400 lbs. being staged; the sectional supers were unusually fine, those taking the first prize being almost perfect in colour and evenness in capping. It was a noteworthy fact, as showing the spread of modern principles, that, although there were classes for glass and other supers (not being sectional), there were no entries, and only one old-fashioned glass super in the largest exhibit from one apiary, all the remaining honey being either in sectional supers or extracted. That cottagers are taking the science up may be gathered from the fact that last year the Silver and the Bronze were carried off by them. Only local makers competed in the classes for hives, &c., and not so many were shown as last year. A hive made from an Assam tea-chest came first in the class for amateurs, cost of material not to exceed *5s.*; it was provided with a crate of sectional supers, included in that sum: a better-made hive in the same class evidently cost more for materials than the limit, and was disqualified. The cottagers' classes had only two entries.

Mr. J. W. Lloyd again undertook the local management of the show, and it was due to his care that everything passed off without a hitch.

Class 1—For the best frame-hive, the price of the hive to be taken into consideration: 1st, M. Meadham; 2nd, J. R. Hole. Class 2—For the best and cheapest hive, on the moveable-comb principle, for cottagers' use, price not to exceed 10*s.* 6*d.*: 1st, M. Meadham; 2nd, J. R. Hole; 3rd, E. Everill. Class 3—For the best moveable-comb hive, being the work of a member of the Association, price of material not to exceed *5s.*: 1st, A. Watkins. Class 4—For the best collection of hives and bee furniture: 1st, J. R. Hole. Class 5—For the best rack containing sections suitable for cottagers' use: 1st, M. Meadham; 2nd, A. Watkins. Class 6—For the largest and best exhibit of super honey, the produce of one apiary during 1883: 1st, Rev. J. E. Sale: 2nd, W. J. Grant. Class 7—For the best collection of honey in sections of 1 lb. or 2 lbs., not exceeding 24 lbs. and not less than 12 lbs.: 1st, F. Lewis; 2nd, T. Charles; 3rd, A. Watkins; 4th, H. Wishlade. Class 10—For the best exhibition of run or extracted honey in 1 lb. or 2 lb. glass jars, the whole not to exceed 20 lbs.: 1st, F. Lewis: 2nd, Thos. Charles; 3rd, M. Meadham. Class 11—For the finest sample of bees' wax: 1st, Miss E. Hall; 2nd, J. Harper. Class 12—For the competitor who shall in the most complete manner drive out the bees from a straw skep, capture and exhibit the queen: 1st, Chas. Hamson, time 7½ minutes; 2nd, E. Everill, time 13 minutes.

Cottagers' Class.—Class 13—For the best supers taken from one hive without destroying the bees: 1st, R. Sankey. Class 16—For the best exhibit of run or extracted honey in glass jars, not exceeding 12 lbs.: 1st, R. Sankey.

Local Prizes.—Class 17—For the best exhibit of run or extracted honey: 1st, J. W. Lloyd. Class 19—For the best stock of live bees exhibited in a straw skep: 1st, J. W. Lloyd: 2nd, J. Morris.

SURREY BEE-KEEPERS' ASSOCIATION.

The Annual Exhibition of the above Association was held on September 5th and 6th at the Royal Military College, Sandhurst, in connexion with the Show of the local Horticultural Society. In spite of a general complaint that supers and sections were not completed by the bees this season, there was a good show of honey, which in many cases met with a ready sale. The visitors to the bee-tent were not so numerous as usual, and the weather somewhat interfered with the operations of the expert, Mr. F. H. Lemare; but as several new names were added to the list of members, it is hoped that the interest in good bee-keeping is on the increase in the district. The following is the prize list:—

I. For the best stock of bees in a bar-frame hive: 1st, C. Scott; 2nd, J. Olds. II. For the best stock of bees in a skep: 1st, W. Harris; 2nd, W. Jones; 3rd, J. Hireson. III. For the best collection of honey in supers: 1st, J. D. Craig; 2nd, C. Scott; 3rd, F. H. Lemare. IV. For sectional supers: 1st, H. Parson; 2nd, R. H. Coppin; 3rd, F. H. Lemare. V. For sectional supers (open only to cottagers): 1st, C. Scott. VI. For the best super of any description: 1st, Wm. Killick. VII. For extracted honey: 1st, Capt. Campbell; 2nd, M. Wood; 3rd, G. Walker, jun. VIII. For run honey: no 1st prize awarded; 2nd, Wm. Killick.

The county bee-tent has, during the season, visited Farnham, East Molesey, Guildford, Albury, and Haslemere; and prizes have been given in other instances with the view of encouraging cottagers to use sectional supers or the slinger for their honey harvest. The work of members of the Association at Croydon was noticed in a very recent number of the *Journal*, and in the Wimbledon district the interests of bee-keeping in general, and of the Association in particular, have received the benefit of the services of Mr. Walker, who has given several lectures in his district, and who also undertook the sole management of bee matters at the Wimbledon Horticultural Show in July, which unfortunately took place on the same date as the Farnham Rose Show, for which the county bee-tent was engaged.

HANTS AND ISLE OF WIGHT BEE-KEEPERS' ASSOCIATION.

The closing show this season of this Association was held in the beautiful grounds of Highcliff, the southern seat of Louisa, Marchioness of Waterford, under a favouring sky, and attended by a fashionable audience. The driving-tent, together with two others, one for honey and appliances, the other for refreshments, had been erected between the castle and the sea, whence a wonderful, and justly celebrated, view of the surrounding cliffs, with the Needles and Isle of Wight opposite, was spread out. The lecturers present for the occasion were the Rev. Walter E. Medlicott, vicar of Swanmon, Bishops Waltham, and the hon. sec. to the Association, E. H. Bellairs, Esq., Nea Close, near Christchurch. Both these gentlemen exhibited their well-known skill in the bee-master's art; the former being ably assisted by Mrs.

Bellairs, who, without veil or gloves, skilfully 'drove' a fine stock of bees to the evident astonishment of the spectators. In Mr. Medlicott's address he related how from one hive alone this season he had taken honey worth 8*l.* 15*s.* at the other end of the county: and Mr. Bellairs urged upon his hearers the importance of autumn feeding, saying, that from his personal observation not 25 per cent of the skeps he had handled this season could survive a sharp winter unaided. It was a great mistake to suppose that bees worked for nothing and boarded themselves.

In the exhibition tent were arranged about 70 lbs. of honey from the apiary of Mr. Bellairs, 24 lbs. from that of Dr. Blake (the judge for the day), whilst the well-known North Hants apiaries of Messrs. E. M. Hart and Co., contributed some 50 lbs., none of which exhibits, however, were for competition. In the competitive classes the show was extremely poor, with the exception of some well-finished sections brought by Mr. G. Ogg, of Winkton, which carried off first prize. Although a considerable sum of money had been collected in the neighbourhood for a prize fund and expenses, a great part of this must lapse to the Association, through the lethargy of the local bee-keepers. It is hoped more enterprise will be shown another year. A novel and well-built quadruple hive with a 'waggon' roof, very suitable for a cottager's use, was offered by the hon. secretary, and won by Mrs. Luke Harris, of Ilford Bridge.

An observatory hive stocked, and with bees, was exhibited by the Messrs. Hart, who also had on show a fine collection of hives and appliances. There were also some extremely well-built hives shown by Mr. G. Summers, of Christchurch.

The prizes were given away at 5 p.m. by Lady Waterford, who was attended by a numerous and fashionable company.

GLOUCESTERSHIRE BEE-KEEPERS' ASSOCIATION.

It is proposed shortly to hold a meeting in the city of Gloucester to inaugurate an association for Gloucestershire; and all persons in the county interested in bee-keeping are requested to communicate with the Rev. S. E. Bartlett, Brockworth Vicarage, near Gloucester; or with Mr. W. D. Slade, 12 Promenade, Cheltenham.

WIGTOWNSHIRE HORTICULTURAL SOCIETY.

The annual show of fruits, flowers, and vegetables under the auspices of this Society was held in the rooms of the Stranraer Academy on Friday the 7th Sept. The entries numbered about 700, being much the same as last year, but there was an additional attraction owing to the recently formed Apiarian Association having been amalgamated for the day, and competitions organized for those who had proved the best bee-masters. One of the apartments was set apart for the apiarian collection, which had been organized by the Rev. Mr. Robertson, of Leswalt, the Secretary of the Association, an enthusiast in bee-keeping, and a successful exhibitor. The most attractive feature in the room was an observatory hive manufactured by Mr. M'Nally, Glenluce. It was most ingeniously constructed, and great crowds were round the erection all day watching with intense interest the busy bees hard at work, while the onlookers could regard all their movements without being stung.

There were in all thirty-five exhibitors, and in every class in the exhibition, with the exception of two, all the first prizes were carried off by Mr. M'Nally, whose exhibits were worthy of the honours they received. Whether in sections, supers, bell-glasses, or jars, his honey was remarkable for its fine appearance and purity. The Rev. J. B. Robertson had first prize for the best 24 1-lb. sections, and, like all the honey got by the new method, it compared most favourably with that shown by those who still keep bees according to the old-fashioned practice.

The following were the awards:—

For the best super honey, under 20 lbs.: 1st, Mr. M'Nally, Glenluce; 2nd, Mr. Lupton, New-Luce; 3rd, Rev. J. Balfour Robertson, Leswalt. For the best super honey, under 12 lbs.: 1st, Mr. M'Nally; 2nd, Miss Nicholson, Glenluce; 3rd, Mr. M'Cracken, Pinwherry. For the best super heather honey, under 20 lbs.: 1st, Mr. M'Nally; 2nd, Miss Nicholson. For the best super honey, under 12 lbs.: 1st, Miss Nicholson; 2nd, Mr. M'Nally. For the best bell glass honey, under 10 lbs.: 1st, Mr. M'Nally. For the best 20 1-lb. sections: 1st, Rev. J. Balfour Robertson; 2nd, Mr. M'Nally. For the best 12 1-lb. sections: 1st, Mr. M'Nally; 2nd, Mr. Lupton; 3rd, Miss Nicholson; commended, Mr. M'Cracken. For the best 20 lbs. run honey, in 1-lb. jars, 1st, Mr. M'Nally; 2nd, Miss Nicholson. For the best 12 lbs. run honey, in 1-lb. jars: 1st, Mr. M'Nally; 2nd, Miss Nicholson; 3rd, Mr. W. H. M'Dowall, Kirkcowan. For the best straw super, under 14 lbs.: Mr. M'Nally. For the neatest super, either wood, glass, or straw, under 12 lbs.: Mr. M'Nally. For the best sample of bees'-wax, over 4 lbs.: Mr. M'Nally. For the best 1½ or 2-lbs. sections: 1st, Mr. M'Nally; 2nd, Miss Nicholson; 3rd, Mr. James Fleming, Castle-Kennedy.

HONEY SHOW AT NEWTOWNARDS.

There was a honey show held in connexion with the Newtownards Horticultural and Flower Show, which is annually held in the Messrs. Dickson's nursery grounds in Newtownards. The display was hardly as large as last year, but the quality was excellent.

Class 1.—For the best quality of honey exhibited in supers, not less than 10 lbs., and not more than 15 lbs., to be exhibited—1st prize, 1*l.*; 2nd, 10*s.*; 3rd, 5*s.*—1st, James Kennedy, Comber; 2nd, Wm. Ditty, jun., Morilla; 3rd, Rev. R. D. Knox, Saintfield.

Class 2.—For best quality of run or extracted honey, not less than 8 lbs., and not more than 12 lbs.—1st prize, 1*l.*; 2nd, 10*s.*; 3rd, 5*s.*—1st, Wm. Ditty, jun., Morilla; 2nd, Wm. Watson, Newtownards; 3rd, C. C. Russell, Newtownards.

Class 3.—For best quality of honey exhibited in frames, sectional or other supers, not less than 10 lbs., and not more than 15 lbs.—1st prize, 1*l.*; 2nd, 10*s.*; 3rd, 5*s.*—1st, Wm. Ditty, jun., Morilla; 2nd, James Kennedy, Comber.

The judges were Messrs. John McDuff, jun., and Greer Macolhason, both of Belfast.

There was also a display of bee-keeping appliances exhibited by Messrs. Alex. Cross, Bryce, and Co., in connexion with the show.

Bees and their Management.—The Rev. J. G. Dangar, M.A., Principal of the Training College, Exeter, delivered an interesting lecture on this subject at St. Paul's Rooms, Westexe, Tiverton on Wednesday afternoon the 12th September. The Mayor (Mr. T. Ford) presided, and there was a good attendance.—The Chairman briefly introduced the Rev. J. G. Dangar, who in the course of his address, which he illustrated with diagrams, dealt with facts concerning bees, their work in the hives and among flowers, economical bee-keeping, and the utility of the various articles used. On the proposition of the Chairman, seconded by Mr. Gill, a vote of thanks was accorded to the rev. lecturer, who, in acknowledging the compliment stated that those present could show their appreciation by joining the Devon and Exeter Bee-keepers' Association. The meeting closed with votes of thanks to the Chairman, and to the Rev. E. Baker for the loan of the room. At the close the hive and other bee-keeping appliances, together with some samples of fine honey, were inspected by the audience.

Correspondence.

*** All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.'*

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of August, 1883, amounted to 6262*l.* [From a private return sent by the Principal of the Statistical Office, H. M. Customs, to E. H. Bellairs, Nea Close, Christchurch.]

MY OPINION OF LIGURIAN BEES.

I had from time to time read various opinions on the Ligurian bees both in the British and American Bee Journals, and in order to set my mind at rest about them I thought I would purchase a couple of queens from different dealers and test the matter in my locality for myself. It was rather late before I thought of getting the queens last year, and so before I got the two finally introduced all right, I had to purchase no less than five queens. I will not state whom I got these queens from, as it might injure one and might possibly advantage the other, and I am sure the *Bee Journal* would not be a party to such. I will call them 1 and 2. They were both introduced into eighteen-frame hives, in order that I might the more fully test their breeding and honey-storing powers. I gave them both the same treatment, and as I am altogether a disinterested party about these Ligurian bees, I will proceed to give my experience.

No. 1 queen was a very fine strong bee, just the colour of a sovereign, and a fine specimen of royalty. The other was very small and dark in colour and not distinguishable from a black queen by an inexperienced eye.

No. 1 increased very rapidly in spring: indeed, I was perfectly astonished at her breeding powers, and I was inserting empty combs nearly every other day in the month of May. No. 2 increased just like an ordinary black queen. On the 13th June No. 1 queen had the whole eighteen frames full of brood and bees and were balled the size of a gallon at the entrance to the hive; and on opening the hive I saw some splendid queen-cells; so I decided to divide them inserting No. 1 queen in the new hive with five frames of brood. I thus left thirteen frames of brood in the old hive with thousands of bees hatching every hour. I stocked three nucleus boxes from old No. 1 hive, and gave each two frames of brood and bees with a queen-cell. Old No. 1 hive swarmed after all, as the remaining seven frames were so crowded I had missed a queen-cell. I let the swarm remain in the skep in which I hived them. Old No. 1 hive reared a queen, which got cross-mated. New No. 1 soon filled a sixteen-frame hive, and afterwards swarmed—thus I had four hives where I had only one in spring. These were all really first-class stocks, and I sold the two swarms in the skeps for a guinea each. The other hive, No. 2, never swarmed at all, but filled out an eighteen-frame hive, and I just got about four pounds of honey from them. I sold this No. 2 hive; and as the old queen in No. 1 was sold with the swarm, I have now no pure Ligurians, my Ligurian queens all mating with black drones.

I have gone very fully into the result of these two hives in order that those about to start with Ligurians may judge for themselves; but I forgot to mention I got about 6 lbs. of honey from No. 1 hive, which, if sold together with its swarms, would show No. 1 and its progeny to bring in 2*l.* 8*s.*, besides leaving me two hives where I had only one in spring.

My opinion is that bee-keepers who rely mainly on selling honey should only keep the long grey-coloured German or black bees, but those that can find ready sale for swarms I would advise to keep either Ligurian or Ligurian hybrid bees. For rapid and perfect comb-building and sealing over honey-cells, there is no bee yet discovered to equal the brown or grey German bees, and I also place them far before the Italians for honey-storing. The Ligurians no doubt gather as much, or perhaps more honey, but consume it in useless breeding to the honey-producer. Again as to amiability, I prefer the blacks, as they are more equable in temperament. The Ligurians are very hard to shake or brush off the comb when extracting honey; and this I consider a bad quality, although the friends of Ligurians give it a prominent place. When you open a hive of Ligurians they turn up their business ends in a fashion much resembling a biting cat. In fact the bee is kept for the sole purpose of gathering honey, and I would set aside all other qualities, as they do not come into question in the hands of an experienced bee-keeper.

If we would let both races remain without any attention, nature would soon settle the matter on the line of 'the survival of the fittest,' and I am quite sure if I had not fed my Ligurians they would never see May morning where the blacks had stores.

I am sorry I have trespassed so much on the valuable space of the *Bee Journal*.—WM. DITTY, JUN., *The Apiary, Morilla, Newtownards, Co. Down, Ireland.*

MY REPORT FOR 1883.

I commenced the spring with nine hives, but owing to feeding with the milk food, &c., I lost two of the queens, as reported in the *Bee Journal* by me some months ago. The early spring was cold and discouraging, still, with constant care and feeding, I pulled my remaining seven bar-hives through; and on the 28th May were occupying on an average about eight or nine frames, the most of which were well filled with brood.

Fruit bloom was late this year, and in consequence bees were long in filling up their hives with bees. Hawthorn broke into bloom about the 15th June, and at this time I had about twelve frames of bees and brood in my long hives, and ten frame-hives were perfectly crowded, and ready for swarming or supering. On the 28th June I had over one hundred 1½ lb. and a half supers on my hives with bees working and storing in them all. But then, alas! July weather put an end to such good work, and all our imaginations were blighted, where all before was hope of a bountiful and prosperous harvest. The white clover (our main harvest) came into flower about the middle of June, and such fields of flowers here of it for size and splendour I never before saw, owing, I suppose, to the growing showers of early spring.

I extracted my first lot of honey on the 9th July, after a week of fair weather. I had about 60 lbs. from three hives. July and the early part of August was, on the whole, bad weather, with now and then an odd fine day or two to allow the bees a sporting time, and just enough to raise our hopes, to be again banished. The supers were sometimes getting a little fuller, and then emptied again; and I never saw such treacherous weather. I had four or five swarms this season, and returned all but two. I also reared four very fine Ligurian queens, which all got cross-mated luckily. I had three or four more queens in nucleus hives which did not mate, and so I destroyed them. I had one queen mated when five weeks old, disproving the theory that a queen will not mate after three weeks old. I saw the drone appendage hanging to and afterwards coming from the queen at five weeks old.

When I saw how the season turned out I thought I would sell some of my hives, and so I sold three bar-

frames and two straw skeps for 7*l.* 7*s.* I got just sixteen 1½ lbs. and a half sections filled, and 5 single 1-lb.'s filled out of all the lot. I afterwards took 26 lbs. of honey by the extractor as a finish up for the season. Thus I got altogether 86 lbs. of extracted and about 25 lbs. in supers. My bees in spring consisted of five black stocks and two hives of Ligurians. Altogether I have brought in over 15*l.* this year between the sale of honey, bees, and prize money.

I shall give your readers some time before spring the benefit of my experience in producing extracted honey, and for supers in this climate I will in future work very little in them. Extracted honey sells readily at 1*s.* per pound, and is far and away the most profitable.—Wm. Ditty, Jun., *The Apiary, Morilla, near Newtownards, Co. Down, Ireland.*

FEEDERS, AND FUEL FOR SMOKERS.

I see Mr. Sturdy, in his paper read at a meeting of the Bucks B.K.A., strongly recommends Blow's feeder. Undoubtedly it is *one* of the best, but, like all other human inventions, not perfect. I find it very near perfection, except in price and when there is a sudden rise in the temperature. Several times last spring I had hives flooded owing to this, though only two holes were open; the cap fitted well and was properly adjusted. I am now trying Simmins', one of the cheapest out; but at this time of year cannot test its working with a sudden rise of the thermometer. For rapid feeding I like Hart's 'Simplex feeder' better than any. Like the two former ones, it is robber-proof and cannot allow the bees to escape while being refilled: and in addition to these advantages, held in common with others, it can be used for candy or flour-cake as well as syrup. In price it comes between Blow's and Simmins'. Mr. Hart now makes it like the latter, with a space of ⅜ inch below the bottom, giving great freedom of access from the hive.

Now as to fuel. Few people have a quantity of 'old lamp-wicks,' suggested by 'K. F. Krocker,' in stock. Successful working depends far more on the *construction* of the smoker, than on the fuel used. I have tried a great many, if not all that have come out; and I can safely say that in Blow's smoker or Abbotts' 'Bingham' as now made by him, any kind of cotton waste, rags, fustian, hemp, carpets, or very old sacking (this if free from salts and quite dry I prefer to anything), will burn as long as a bit is left, provided the smoker stands on end instead of being put down anyhow. Old blotting-paper, too, is first-rate, but it burns rather quicker than other things.—A Certificated Expert.

SMOKERS.

I see in your last issue that 'K. F. Krocker' complains of his smoker going out until he took to burning lamp-wicks. Now every one cannot get lamp-wicks, but every one can get sound wood or sticks, and if these be really dry, and used in a Bingham's 'Conqueror' smoker, I know of no smoker that will keep alight so long, and gives such volumes of smoke. The first cost, 7*s.* 6*d.*, may seem great, but it is a well-made article; the springs are soft and easy, and the immense command it gives one over the bees is not appreciated until tried.—J. M., *Faversham.*

HONEY HARVEST IN SCOTLAND.

I enclose you a cutting from the *Galloway Gazette* (see Wigtonshire), showing you, notwithstanding our bad year, we in Scotland are still keeping up to time, and pressing forward in the race to be 'bee-keepers.' My friend, Mr. M'Nally, before going so far south, was formerly an active member of our Society, and it is gratifying to find that in the same year we have invaded both the extreme north and south of our country. I hope they will form branch societies, and be of some use to these localities, and be able to send good reports to the *Journal.*

There is a prejudice against odd years in Scotland for the ingathering of honey; 1875, 1877, 1879, 1881, and now 1883, have all been very indifferent. We have had less rain this season, but it was so late and cold; only one fortnight in July fit for the bees to do anything.—Robt. J. Bennett, *Hon. Sec. C. A. S.*

CANDY FEEDING.

It is with pleasure I read 'Amateur Expert's' letter in the *Journal* of Sept. 15, cautioning beginners, &c., in the art of bee-keeping against too implicitly following the advice of Mr. Hewitt in the matter of supplying bees with candy for wintering. Having had practical experience in this matter of 'candy feeding,' the following particulars will show how it succeeded in my case:—

Late in October last year I purchased a number of driven bees (some twenty lots). I placed them in seven frame-hives, and being very busy did not feed with syrup as I usually do, but each stock had six frames supplied to them: viz., four light frames of comb, containing some 6 lbs. of honey, pollen, &c., and two heavy frames of candy. All the seven lots seemed to be healthy till early in February, when returning home after two days' absence I found two stocks quite dead, each having large healthy patches of brood, and the candy covered with bees, but not half consumed, but all the honey gone. Two of the other candy-fed stocks were only saved through the timely use of lukewarm syrup; and with the greatest attention the five remaining stocks came into the spring in very indifferent condition, and none of them were swarmed.

Some forty other stocks which were fed, &c., up to some 30 lbs. each with syrup in early September, wintered without a loss, and strong swarms were taken from each. The only conclusion I could arrive at about the two candy-fed stocks was that they had perished of thirst, and the surviving ones were much weakened because of their occupants perishing in numbers, through trying to obtain water while weather was too cold. This year all my bees are going into winter quarters well weighted with their natural stores and syrup only. I, at all events, have had enough of 'candy feeding.'—G. Stothard, *Welwyn.*

MR. HEWITT ON ZIG-ZAG ENTRANCES.

On page 155 of the *Journal* for September 1, Mr. Hewitt, in response to Hj. Stalhammar, editor of the *Swedish Bee Journal*, says, 'I believe the contracting or zig-zag entrances of Cheshire, Abbott, and others, have directly and indirectly killed more bees during winter than any other cause I know of—I might say, all others combined; they are designed to keep out the sun's rays during winter, and assist weak stocks to defend themselves from robber bees, which said weak stocks ought not to have been in existence, and which is certain ruin to strong ones.'

In writing this I have no wish to argue on the many points Mr. Hewitt has cited, but should like to ask him the grounds upon which he classes me with 'Cheshire and others'! as an inventor of zig-zag entrances, for to my knowledge I have never even said a word in favour of them? Mr. Cheshire, in describing them (p. 174, vol. viii.), said he had used them during two or three years prior to 1881, and highly recommended them, saying, 'He had so fully proved their efficacy that he was adopting them [the entrances] as an integral part of his hives, even to the exclusion of the well-known sliding doors;' but I have never approved them. In proof of this my reply (as editor) to a correspondent on the subject (p. 244, vol. viii.) ought to the conclusive. I wrote, 'They will doubtless answer their intended pur-

pose as light-excluders, but in cases of robbing we should much prefer the perforated zinc tube described on first page of the March number of *Journal*. Crooked and tunnelled entrances are liable to become choked with dead or struggling bees, as many have found to their cost.'

It is bad for Mr. Cheshire's invention that it has killed more bees in winter than all the other causes (of death, I presume) combined with which Mr. Hewitt is acquainted, but it would be more conclusive if Mr. Hewitt would state the number of causes of death to bees in winter with which he is acquainted. For myself I confess that I know, in a general sense, of only one winter disease, viz., dysentery: and during nearly ten years it was my study, and as editor of this *Journal* I strove against it, and by line and precept practically banished it from my own apiary and from those of others who were content to follow my lead. But since then a new school has been opened, and the scholars teach that I was wrong.

An 'Amateur Expert' did good service in the last number of *Journal* in cautioning beginners in bee-keeping against Mr. Hewitt's ideas on feeding, and I commend his letter to the careful consideration of all interested in feeding up for winter, and to those who intend to follow Mr. Hewitt's advice I venture to say, 'Don't.'

The latter part of the quotation first made by me in which Mr. Hewitt made out that the existence of weak stocks is the certain ruin of strong ones is rather vague. Does he mean to suggest that nuclei, which are essentially weak stocks and always liable to be robbed, should never have existence? Or being established, that they should have no protection? Perhaps he will kindly explain.—C. N. Abbott, *Fairlawn, Southall, Sept.* 24.

SADDLER'S TABLETS.

In your last issue Mr. Hewitt says I have failed to understand what he has written. Now, sir, I do not believe he has understood himself, and by his last letter he has proved that he is writing on a subject that he knows little or nothing about. It is well known to every bee-keeper that bees will eat boiled sugar in almost any form, if they can get it to deliquesce; for which Mr. Hewitt may be thankful, or else they would not have managed the stuff he has prescribed.

Again, he says it is not a candy we want, but the one, mark you, most suitable for bees. Now I hold, after four years' careful experimenting with 'tablet,' as I choose to call it, that the way for making and using it, which I have described, is the best. He makes a great ado about my recommending Dutch crushed sugar as the best; now I do not believe it makes much difference what sugar you use, providing it is white. But Dutch crushed has this virtue, that it will form into smaller grains after it is granulated, and is therefore easier to deliquesce. Again, he says he has not published any receipt for making flour-candy, and then he acknowledges that he puts flour into it: I fail to see the difference. He does not put salt in to kill the grain; what does he put it in for? he guesses the grain is killed when it is dissolved. Now, if Mr. Hewitt, when he takes his sugar off the fire, will set it down, and let it set until it is cold, he will find that it has regranulated of its own accord, thereby proving that it was not killed. Now, if he will try it my way, he will find, when cold, it is still transparent, and like thick run honey. Again, he says I seem full of cream of tartar; not so sour an element, Mr. Hewitt, only a little to keep you from leading unwary bee-keepers astray. He condemns all acids. Like 'Amateur Expert,' I say *Why?*

Again, he puts his in frames down amongst the bees. Would any sane bee-keeper think of putting a dummy of rock sugar (which his must resemble, owing to the height to which he boils it) down in the centre of the brood-nest. But 'Amateur Expert' has sufficiently answered that point. No, Mr. Hewitt, I place mine on the top of the bars in the warmest and driest part of the hive, where it is away from robbers, and leaves a passage for bees from one comb to another, and where they can eat it in all weathers, and it will not melt until they do so. Again, his sets almost instantly: that is natural, owing to the height to which he boils it—in the most minute crystals. Not so, Mr. Hewitt, you want the cream to kill the crystal. And I never said mine required drying. Not 2 lbs. were consumed from October to April: bee-keepers, there's a nut for you to crack. He has magnified my figures from 27 to 29 lbs. Well, I admit this was an extreme example I gave: the hive was a remarkably strong one: it was worked with double bars, fourteen below and fourteen above, being out in the beginning of September month. I took away the fourteen top-bars, all the honey was in them, and I admitted I gave them too much, as I only had to give another 2 lbs. in spring, or rather in May, after I had cut all their sealed stores open. I do not like my hives short of stores in winter, as I find they are always restless and ready to come out with the least glimpse of sunshine. I also like to have all my feeding done by the middle of October, and to be sure that they have sufficient to last till April: I have tried feeding all winter, and have been quite successful, but it is unnatural, so therefore I do not approve of it.

I may mention here, for the benefit of 'Amateur Expert,' and others like him, who seem to be afraid of this food, that I successfully wintered thirteen stocks last winter on tablet, and used 140 lbs. in all. But then I take all the honey I can get without taking bars that contain brood, and they were as healthy and strong as I could wish them.

Again, what does Mr. Hewitt mean when he says *my* candy, does he mean that it is *original?* is he not aware that Mr. W. Raitt, Blairgowrie, gave a receipt for making and using it as far back as November 1879, in the *Bee-keeper*, a journal of which a few numbers only were published, and it has been in general use in the east of Scotland since that time. It is no new thing, Mr. Hewitt, it has been tried in bars, in plates, behind the dummies, with and without cream, and every other way, unless the bracing of the bars with twine, which is the only new feature, and I suppose nobody has ever thought about putting themselves to so much trouble, when it would stick into the bars without it.

Now, I hope I have subjected Mr. Hewitt's system sufficiently to the digestive process, and pointed out enough of improvement and error to show him, and all bee-keepers, that his way is troublesome and misleading. —Jas. Saddler, 31 *East High Street, Forfar.*

SYRUP *v.* CANDY.

Notwithstanding other remarks to the contrary, I take this opportunity of stating that, as regards food, 'perfect rest and quietude' during winter is assured only by the bees knowing themselves to be in possession of *well-stored and sealed combs* of honey or syrup. It is well that it is so, as large bee-keepers would find it a tedious matter to stand for hours over a small pot, cooking a few pounds of sugar at a time in making candy, instead of converting it into syrup at the rate of several hundredweight per hour. For autumn food I use half-a-pint of water to every pound of sugar, with no acid or salt whatever; boiling down one hundredweight at a time in a copper, costing in fuel no more than it would to make a dozen pounds of candy over an ordinary fire, and in much less time. I boil only so long as it takes to melt the whole thoroughly, and am never troubled with it crystallising.

Mr. Hewitt thinks his 'theory' will revolutionise the present mode of wintering. Does he forget that Ame-

rican, and many prominent English bee-keepers, have given candy a fair trial, in wired frames, as well as between and above the frames? and though it may do to help needy stocks in spring, no advanced bee-keeper would think of risking his all on candy alone. Mr. Hewitt truly states that the ordinary liquefying candy will keep bees excited all winter. But with his dry candy, he will find just as much excitement and more loss of life, unless he gives his bees water during the whole winter, as without it he may as well expect bees to suck juice from a brick wall, as to subsist on the dry slabs of sugar he intends to winter (?) on. The merest novice will readily perceive that these slabs of candy create undue excitement. When I state that during winter strong colonies have again and again built comb in the frame, according as they use up the sugar: showing also that they will go forth in search of water at such unseasonable times, as often as the least opportunity offers. On the other hand, in the absence of water during a sharp spell, with nothing but these frames of dry candy to depend upon, the bees must starve, unless they had previously converted some into syrup and stored it in the cells around their cluster.

Again, about Sept. 20th, after removing combs without brood, Mr. Hewitt is going to extract the honey from those that have. What will excite the bees, and make them continue breeding more than these wet and 'half-emptied' combs, when returned to them, with the pollen also exposed? It is not wise to extract honey from combs of brood during summer, and so late in the year it is certain destruction to the larvæ: and I warn beginners, especially, to *beware* of leaving chilled brood in the hive just before winter comes on. I say 'half-emptied,' because, so late in the year, the honey has begun to granulate, and is very difficult of removal. I have had honey gathered in May crystallise within four or five weeks, though capped over, and covered with bees.

Your correspondent also states that he cannot condemn too strongly the practice of stimulative feeding between the end of August and end of April; and yet, in strange contradiction to his own words, he follows on by saying that by the middle of March he will give more candy, or the frames of honey removed the previous autumn. This is one of the usual modes of spring feeding, as nothing will 'stimulate' them to greater exertion: and though such is the case, he wants his bees 'perfectly quiet' until the end of April!

About one and a half miles from my apiary, straw hivists have done very well the last two years, though in many other localities bees have had to be fed all summer, or die. The fact is, that about the end of February they begin to work on the furze, and bring home immense quantities of pollen from that source, which induces extensive brood-rearing. This supply lasts many weeks, bringing them into good condition by the time sanfoin and trefoil come in, about the middle of May. Other crops carry them through the summer. And then we come to the next point, autumn breeding. They continue raising brood in quite large patches, well on into October, as the heather is all close at hand. And thus, with no artificial feeding whatever, we have bees breeding naturally from the end of February up to October. I say, therefore, that gentle stimulative feeding from the beginning of March to the middle of Sept. is not only quite within nature's limits, but beneficial to both the bees and their master.

When the late editor of the *British Bee Journal* used to feed his bees fast, he advocated that the syrup should all be given in the month of August. He afterwards found, however, that he could obtain better results by feeding so slowly as to produce brood up to the end of September; and though I have tried many ways, and feeders, I have yet to find a better plan than giving a gentle continuous supply of syrup. With food given in this manner little excitement occurs, and soon after feeding is discontinued, the colony settles down with double the number of bees, and these mostly young, which experience has many times proved stand the winter better than the old bees usually found in a hive at the end of August, many of which have recently worked hard, and never live to see the beginning of winter.—SAML. SIMMINS, *Rottingdean, Brighton.*

MR. HEWITT'S SYSTEM OF WINTER FEEDING.

I never conceived that any bee-keeper would put all his bees in candy the first season, so I do not object to 'Amateur Expert's' advice to young bee-keepers to a certain extent, not because I have any doubt of its success, but owing to the possibility of their not comprehending the matter, they may do something or leave out something that will cause failure. For instance, one correspondent wanted to give a supply of water (as advised by Mr. Abbott in *B. B. Journal*, page 200, vol. viii.) all winter. He then made up three stocks into one, and (contrary to my advice) gave them a frame of candy first week in September, and wrote two days afterwards to say 'they had eat it all,' the weather having been mild enough for bees to fly for water and convert it into syrup.

Notwithstanding 'A. E.'s letter I believe a large number of bee-keepers will try their ''prentice hand' on one or more stocks; and, whether young or old, I would advise all to try at least one, or they will be just a year behind next season in experience.

As a doubt is now expressed I feel called on to state my grounds for being so confident in it (for I have resolved not to feed on syrup this fall). Well, some years ago I found an old woman feeding her bees on candy during winter and spring; she said she always fed them that way, and perhaps her grandmother did also; she simply poured the candy while hot on to paper, and then put it on floor of hive, lifting up the skep to put it under. The next I heard was an experiment by 'A Warwickshire Bee-keeper' with 2-lb. butt-end of a sugar-loaf, particulars of which will be found on pages 189, 243, vol. viii., and page 12, vol. ix., of *B. B. Journal*; also comments on the experiment by the editor, which will be found on pages 186, 200, vol. viii., which show in what light hard sugar as a bee-food was looked upon two years ago; in fact, previous to this I may say the *Journal* was adverse to dry sugar as food, yet, contrary to all theory, the 2-lb. lump of sugar wintered the bees, they having only eaten 1¼ lbs. of it. The next account of it is in the form of an 'Echo' by the same writer on page 168, vol. ix.; very likely the crystals of his sugar this time were too large, and did not succeed, as I do not remember hearing more from him on the success of dry sugar. I have often thought of this and the old woman's candy, and wondered how dry sugar could be reduced to simple practice. We then get receipts for making 'sugar-cake' in *Journal* and *Modern Bee-keeping*, which was only recommended to be given to starving stocks. Also we have Mr. Benton sending queens on candy and water as food, of which I had the opportunity of noting the small amount they eat, and the fine condition it kept them in. So it will be seen I have no claim to the authorship of dry food, but only to an improved system of making and using it. Then there is the 'Forlorn Hope,' as it is dubbed, which surely was a careful experiment, conducted during a winter and spring of all kinds of weather, and which should convince the most sceptical.

Let us now consider and compare it with syrup food. If we take 4 lbs. of bees in September and give them 7 frames of comb, we shall require 30 lbs. of sugar at 3½*d.*, costing 8*s.* 9*d.*, made into syrup to make the said combs, when nicely sealed over, weigh about 20 lbs., the rest having been expended in 'wasted energy,' then by Christmas the bees will have dwindled down to less than 2 lbs.,

and in March it may be a toss-up whether to unite or let them be.

Now, with candy, all we should require (and by my system driven bees will be more valuable in October and November than August) would be to give them a pound or so of stiff syrup to keep them from starving until we give the candy, and which we can slip in any time when convenient at a cost of 1s. 9d., with the almost certainty of having the same weight of bees in April. Again, bee-keepers who find their stocks starving in winter can, by very little expense and trouble, give them a frame of candy, and thus make them safe.

But the burden of 'A. E.'s song is, Let old bee-keepers try the system and the young ones stand by looking on. I would ask, Why not young ones try it also? I have more hope in the young, they are seeking information, and are anxious to learn, while the old ones think they know all about it, or will not bother. Have the old ones tried my experiment on page 66 of *B. B. J.* of fertile workers living and laying side by side with a queen, and which enables me to unite or give a queen to hives with such? or my law of how to introduce queens without caging, on page 83? or my impeachment of the forty-eight-hours' rule of caging, which shows me the way to introduce queens to swarms of sixteen or twenty days old after twenty-six hours with certainty? or do they believe my maxim of more sun more honey, on pages 33, 100? I find old bee-keepers are fixed believers in Mrs. Tupper's 'That bees do nothing invariably,' and if they see anything different to what they consider 'law,' it is set down as a 'freak,' instead of investigating the matter and making a discovery. No, while I am anxious for the old, my hope is with the young, as a certain Bishop said when asked if he could convert every one to his religion, answered Yes, if he could only teach all the children.

Well, to criticise 'Amateur Expert's' letter; in the first paragraph he implies that he did not read any of this correspondence before his attention was called to it by a 'young' bee-keeper, and is then surprised to find how rapidly the idea has spread. I should have thought an 'Expert' would have read the *Journal* through from one end to the other, so as to keep up with the times, and be an expert in more than name.

On July 15th I admit nothing, but simply state the truth. Would he have me do otherwise? The second I have practically answered in a reply to 'Cornubia.' In the seventh paragraph he does not endorse my theory of crawling having a beneficial effect, and says bees ram themselves into empty cells head to head in cold weather so as to form a compact mass, with the stores of food above them, the implication being that there they remain till the cold has passed, and if they want any food they do not crawl down to get it: then he goes on to say that if a frame of candy is put between the bees, the more they consume it the more they would be divided, with the probability of getting into two halves. If he is any more than a novice he must know that such a result is impossible, for in winter, when bees are clustering, they keep close together, and fill up every crevice, whether it be spaces, passages, or empty cells, therefore, the more candy they eat the more compact would be the cluster, and instead of their being divided they would be united. He then goes on to prefer giving 'slabs' on the top, a practice I have nothing to say against in summer, when I prefer flour candy, which bees do not so readily convert into syrup, and which is so safe to have about, and so easy to push under the quilts when stocks are likely to starve.

Then he finishes up with the remark that 'in theory it is unnatural.' Surely, whether he be novice or expert, he must have noticed candied honey in the combs, and has he no suspicion that bees can eat and live on such? and that they do not carry it out of the hive, but use it up. If candy is an unnatural food, why does honey candy at all, and not always remain liquid, like glucose? and why can bees eat and live on candy, which is now a recognised fact beyond dispute? I cannot see anything unnatural in candy, or objection to using it in a natural way.—JOHN HEWITT, *Sheffield.*

[As the matter of winter feeding is one of the greatest importance to bee-keepers, we have given it a free ventilation in our columns. In the present issue will be found the opinions of several experienced bee-keepers on the mode proposed by Mr. Hewitt; also Mr. Hewitt's reply to former letters, in which he states at some length the premisses on which he has founded his system. With the preceding letters we consider that the correspondence on this subject should now be brought to a close. Mr. Hewitt's system requires to be sufficiently tested before we can recommend any departure from 'the ancient paths.' Mr. Hewitt, and perhaps others, will give the method a trial during the coming winter, and we shall be pleased in future numbers to record their experience.]

REMOVAL OF FORTY-SEVEN STOCKS OF BEES IN BAR-FRAME HIVES 120 MILES BY RAIL.*

As one deeply interested in this great and successful removal of stocks of bees in bar-frame hives by rail, noted in your issue of Sept. 1, by Mr. D. P. Meadows, of Great Yarmouth, and having a large share of the labour in Mr. Meadows' undertaking,—brought about by our esteemed Chairman, T. W. Cowan, Esq., who kindly referred Mr. Meadows to me as a pupil to learn bee-farming, and who came with the afore-mentioned result; and I may say my thanks are due, and are hereby given, to Mr. Cowan,—I forward these few lines supplementary to those of Mr. M., which I venture to think will be of interest to your readers.

I would first state that after having agreed to supply Mr. Meadows with the stocks of bee-hives and other apiarian goods, the next thing was the valuation thereof, no unimportant part of the transaction: and fortunately we have in Lincolnshire a gentleman who possesses sound, practical judgment, and who is always ready to dispense it when called upon,—and this I know is very often. We had no difficulty in securing for our purpose Mr. R. R. Godfrey, our esteemed hon. secretary, who made the valuation, and that to our mutual satisfaction. This done and plans made, preparation was at once set on foot for removal; surplus honey extracted, fixed frames put over zinc, roofs taken off, the whole packed in waggons, and removed to Rushington Station, a distance of three miles,—part of it had large lime-stones upon it and rutty. Here we found ready a van in which to pack our cargo. Mr. M. had left no stone unturned to ensure not only a cheap passage, but a quick and safe one; for after we had packed all and taken our tickets, the van was attached to a fast train, and we arrived at our destination in little more than six hours. Much interest and amusement was created both on the way and in unshipping by on-lookers at our wonderful little freight, which was quickly reshipped to an ordinary springless waggon, and wended the way over a rough road, being some distance across the heath at Belton, where we safely landed the whole of the vast cargo, with the exception of the small breakage which Mr. Meadows mentions, and these combs I tied in frames again, the stock being lost by an oversight in making the artificial swarm of six frames. Our next work was to arrange hives and unpack. This was effected with little trouble compared with that at the other end. After a scan round I left my little friends to glory over the broad acres of heather, clover, &c., and accompanied

* This letter reached us too late for insertion in previous number.

Mr. Meadows to his hospitable home at Yarmouth, and after a sniff from the delightful breeze from the sea returned to Evedon.—ROBERT THORPE, *Evedon, Sleaford.*

SUSSEX BEE-KEEPERS' ASSOCIATION AT HASTINGS.

'Honest criticism is not unwholesome,' as quoted by Mr. H. T. Spice, Westham, Hastings, who should ascertain facts before making statements which go before the whole world. If Mr. Spice had made inquiry, he would have been told Groombridge is in Sussex, where a third prize went. Tunbridge Wells is in three parishes, viz., Tunbridge and Speldhurst in Kent, and Frant in Sussex, the winner of the second prize living in the latter. Mr. Spice is correct in calling attention to exhibitors out of the county, as the schedule issued previously to the show states, 'Members of the Sussex Bee-keepers' Association,' and 'Cottagers residing in the county of Sussex,' leading any one to think it was confined to Sussex only. When schedules are made out, it should be stated if open to all England or to the association which issues it. I am sorry to add the Hastings Flower Show, at which the Bee and Honey Show was attached, has a balance of 30*l.* on the wrong side.—T. MARSH, *Tunbridge Wells.*

[Another correspondent, 'A. West,' writes to the same effect as the above.]

HUMBLE BEES FOR MATAMATA.—CAUTION!

I see an announcement in the *Journal* that Mr. J. C Firth is making an attempt to introduce humble-bees into Matamata, and has already failed in one attempt. Permit me to point out to him that his second attempt will also most certainly fail, if carried out on the lines indicated. We are informed that Mr. Firth 'has despatched an order over here for one hundred nests, with instructions for them to be shipped as early as possible,' &c.

Any attempt to acclimatise humble-bees by sending nests over to New Zealand must end in failure and disappointment. What is wanted is to send over the *fertilised females—queens*: these may be found hybernating in various out-of-the-way places in the winter, and each of these will form a colony if it lives. The nests in autumn, if they contain any bees at all, will contain nothing but unfertilised queens, neuters and drones, none of which will survive the winter.

If Mr. Firth will send over an order for one hundred hybernating queens he will more likely succeed in his laudable object to benefit the colony; *in no other way can he hope to do so.*

A great fertiliser of the red clover is the silver Y moth (*Plusia gamma*), and probably this might be introduced with success by means of eggs or larvæ. Ligurian bees are said to frequent the red clover, and if so, no doubt fertilise it; but of this I have no personal knowledge, as I have none myself, and do not think any are kept in this district, hence my never seeing any hive-bees at work on it: but if it be so there will be no need to introduce humble-bees or anything else.

Trusting this letter will be in time to save a lot of trouble and certain disappointment.—F. BOYES, *Beverley.*

Echoes from the Hives.

Ross, Herefordshire.—In some apiaries in this district the bees have done fairly well, in others, liberal feeding alone will put them in a fit state for wintering. Two of my stocks have done well, took off 40 lbs. in sections from one in July; other stocks have gathered a bare subsistence. Have driven several lots of bees and found some in remarkably good condition: in one straw hive there were about 30 lbs. of store. On a hillside near here, the other day I assisted to drive eight skeps, and notwithstanding the existence of heather on the hill, the supply of honey was very small, only two out of eighteen hives having sufficient for wintering. The bee-tent of the Herefordshire Association has done good work in this district, having attended thirteen shows in the county during the present season.—JOHN A. J. CONNSELL.

North Leicestershire.—The last attempts at extracting have been made, and the total results of the year are undoubtedly without precedent for paucity of honey-yield. Driving condemned and *starving* bees for skep-pists has furnished a good deal of employment for advanced bee-keepers; and as there must be hundreds of late swarms and casts in a starving condition, it may not be out of place to give an instance of what may be done in the driving line with stocks *furnished with this season's comb only.* Dr. Emmerson and the writer, at 6 o'clock p.m. on September 12th, commenced driving three stocks, viz. two late swarms and a cast. The first swarm had filled the hive with comb, but was nearly ten minutes before it began to run; the second swarm had only *half filled the hive with comb,* but the bees 'ran' much quicker than in the former case; the cast had not filled more than a quarter of the hive with comb, but the bees literally bolted after the first few taps. The whole process occupied less than an hour, but it was nearly dark when the cast was driven. It is almost needless to add that the hives were without honey, and that the bees had to be liberally supplied with scented syrup.—E. B.

Wilts.—A dismal one enough, as regards the generality of bee-keepers. Except in a few special cases little work has been done in supers since the early part of the season. Breeding went on to an unusual extent, and the day income was spent on rearing, and little could be spared for the master to extract. Stocks now (from what I see and hear) have plenty of bees, and, generally speaking, almost enough honey to stand the winter, though very many will need careful feeding—very few, indeed, having any surplus. Breeding generally seems to have almost ceased for the last three weeks or a month. In May there were only 178 hours of English sunshine, and 18 days on which snow or rain fell: in June, 139 hours' sunshine, 16 days wet; July, 156½ hours' sunshine, 18 days wet; August, 184 hours' sunshine, 15 days wet. Cottagers' bees generally are in a very poor way. Four stocks bought the other day weighed but 45 lbs., skeps included; and a so-called 'swarm' was bought yesterday.—W. E. BURKITT, *Hon. Sec.*

Hunts, Somersham.—For feeding and getting stocks into a thoroughly good wintering condition the weather of the past fortnight has been most favourable. Stocks, and late swarms in particular, that have only a sufficient supply of food to last with open weather two or three months are numbered by the dozen, and that they will die before spring is almost a certainty, because many to whom I have recommended feeding at once say, 'If they can't get plenty to eat they may die.' These 'penny-wise and pound-foolish' people seem to forget that they and they alone are responsible for their bees being on the verge of starvation. Should the bees die it is a pity that the only punishment such people get is the loss of the stock.—C. N. WHITE.

Devonshire.—The month of August proved a little better, and we had some fine weather, but alas! it was too late for honey gathering; and only in the heather districts were the bees able to do anything, but the spell was of short duration. Some bee-keepers in the county have done fairly well. A cottager obtained 60 lbs. of comb honey in sections from one stock, and he is so convinced of the superiority of bar-frame hives over skeps, that he intends in future to use nothing else. I have examined many stocks lately, and find that very little honey has been stored. Bees are numerous, so that if their owners will only spend a little in sugar this autumn, they may have a chance of recovering their

losses another season. I do not think there were 3 lbs. of honey in all the hives used for manipulations at our various shows this year. I obtained 186 lbs. of comb honey in sections from my apiary this year; but considering I have ten hives, and they have been very strong with bees the whole year, it is but a poor return. The wet has been most destructive to Devonshire bee-keepers, so it is some consolation to know that I am not worse than my neighbours. The total rainfall for the month was 2·15 inches; most in twenty-four hours was 72 cents., on the 31st. We had on the whole seventeen wet days. In the corresponding month in 1882 the amount of rain was 4·58 inches, double the quantity registered this year.—Wm. N. G., *Hon. Sec. D. & E. B. K. A.*

Rottingdean, Sussex.—September came in with a heavy gale from S.S.E., afterwards veering to S.W. It continued three days, and its violence was such that foliage, where exposed, was completely ruined, and in a few days trees were almost leafless. The whole of my Canada balsams were stripped of blossoms and leaves, nothing but the bare stalks remaining; but as I had a heavy crop of mustard coming along between them, there was little loss of time. After the first week, until now, with wind E.N.E., the weather has been exceedingly fine, and very favourable for feeding winter stores. Borage has been persistently blooming since May, and the bees are at it from early morn till dusk. Should I grow any crop extensively for bees, by the acre, I should adopt this as one of the best, requiring really no attention after once started. The seeds from the earlier plants drop and bring on a continual supply of young plants. Where my beds now are I shall have the ground dug some time before December, and as the young plants come up in the spring I shall probably plant the whole of my ground, as it is not desirable to keep on with a succession of mustard. Mignonette would do as a field crop, except that weeds so soon get the better of it, unless constantly seen to, and this makes it an expensive bee-plant. It is, however, a great favourite, and is constantly visited by the bees, while some other plants do not attract them as the autumn comes on.—S. Simmins.

Springfield, Sept. 21st.—The season, prolific in swarms and honey, has closed with a month of fine weather, which has given us an opportunity of feeding up to strength where necessary. Bees in this neighbourhood, I believe, are in good condition and require little feeding. Wasps are very numerous and troublesome, making it necessary to contract the entrances. From experience gained last season, I intend to winter nearly all my bees upon all the frames. I may mention that, acting upon advice, I used West Indian, or what I think it is commonly called, 'ham' sugar, for feeding. As I found the sediment blocked up the holes of the feeder and occasioned much trouble, I have returned to the loaf-preserving sugar.—G. H. A.

South Cornwall, Sept. 24.—With but few exceptions that I can hear of, this has been a disastrous season in these parts. Last week a cottager, who had been 'taking off' some bees, told me he had got a little honey, but nothing like as much as in other years; though I think he said he had from one hive as much as five quarts. But he is a fortunate exception. Cottagers belonging to our Club have got nothing but a few swarms, which are nearly starving. I have been lately engaged in uniting my skeps, two and three in one; and the best have only contained a few narrow strips of sealed store, from 1 in. to 3 ins. deep. Bar-frame hives are rather better off, and I have been able to take out a few partially filled frames before feeding up; but not one completely sealed section have I had this year from twenty-four stocks and swarms! The close, foggy weather which has prevailed for four months, with the exception of about three weeks during harvest, has been favourable for brood-rearing, but quite the reverse for the production of nectar. I expect that those who keep a record will report an unusually small amount of sunshine. We must try to live in the hope of 'the good time coming.'—C. R. S.

Kent, Faversham, Sept. 24.—Since the gale of the 2nd of September we have been having a good time for the bees, and they will add something to winter stores, though not quite sufficient; and this last week I have been feeding, more or less, to all stocks, with a few exceptions. Breeding seems to have stopped in nearly all the hives. My account for this year's work is as follows:—Spring count, fourteen stocks, increased to twenty-seven; closed up for winter to eighteen. 240 lbs. extracted and 62 lbs. section honey taken.—John Marten.

South of Scotland.—The honey harvest in the south of Scotland turns out an almost total failure. On account of the lateness of the spring, the bees had to be fed to avoid starvation. Although they bred well and swarmed numerously, the cold weather experienced during the summer prevented the storage of honey, very little of which has been obtained from the bees this month. Usually the heather can be depended upon to compensate for a backward summer, but this year it will yield little or nothing. The honey harvest has not been so bad for many years.—*Echo, Sept. 21,*

Queries and Replies.

Query No. 704.—1. *Feeding for Winter.*—My hives do not weigh enough to keep through the winter, I am therefore feeding them with syrup through a bottle at the top of each, the bottle having calico at the mouth inverted over perforated zinc. I see the bees through the zinc apparently feeding, but as they take nearly a week to drink ¾ lb. of food, I don't see how it is possible for them to feed up 15 lbs. by the middle of October. The books tell one to feed up rapidly; but how is it to be done if the bees won't feed: and is there any reason why they do not feed more quickly? The food is from the recipe in Cowan's book, and clear as water,—no crystallisation. Can it be possible they do not get at the syrup? Their antennæ are working through each hole in the zinc. The hives weigh about 15 lbs. I am anxious therefore to make them 30 lbs. before winter. 2. *Honey Harvest.*—One of my stocks in a straw hive was very strong this summer. I put a super on in May half filled with empty comb. The bees were in it all the time in crowds, but when taken off at the end of two months there was scarcely more comb in it than when put on, though they seemed to be working hard every day. What was the cause? The bees in this same hive about the beginning of July seemed to give up working, and hung about like a plaster all day long outside the hive, but without swarming. I thought bees worked till the end of the summer. What ought I to have done with them?—Inquirer, *Moreton-in-Marsh, Gloucestershire.*

Reply to Query No. 704.—1. Calico is of too close texture to allow the bees to feed rapidly. A strong stock of bees would take the syrup through zinc alone, without any other material intervening. At all events, '*cheese-cloth*,' of loose texture, tied over the mouth of the bottle, and inverted, with or without zinc, would enable them to feed quickly enough. A float-feeder is best for rapid feeding. From such we have given to a populous colony from 4 to 6 lbs. of syrup daily. All syrup feeding should end with this month; if carried on later, risk of dysentery is incurred from much of the food being left unsealed. After this date bees should be kept perfectly quiet and free from all excitement, especially from that caused by feeding. Candy (and that only to prevent starvation) is admissible now. 2. Your honey harvest must have been a poor one. If honey were not forthcoming from the fields, it was impossible for your bees to complete their super. It is quite pos-

sible also that they may have changed their queen, thus causing a check to the increase of population and storing honey; but from your description we are inclined to think that the failure is to be attributed to want of supply, or unpropitious weather. You cannot do better than leave them alone, taking care only that they are prepared for winter, and fed upon candy, if short of food. They will probably repay you another season.

QUERY No. 705.—1. *Aspect for Bees.*—In a small garden at the rear of my house is a high wall, with overhanging trees, sheltering the garden from the north, north-east, and east. Under this wall I have a pigeon and fowl-house. Would you advise my putting either of my five hives of bees in said house, it being so sheltered and dry, and, I think, warm too, my object being to promote early breeding by queen? 2. *Queens.*—I hope to introduce Ligurians in my colonies next year. Would you advise purchasing a *queen only*, or 1 or 2 lbs., as advertised, and the cost of a queen extra, and when? 3. *Late Breeding.*—Each of my queens appears to have left off breeding, and even my strongest stocks are not full of bees and stored food; so, with the hope of inducing the queens to recommence egg-laying, I am feeding with thin syrup; but the bees will not take it down out of the bottle. Can you tell me why? 4. *Bees forsaking Hive.*—I made an artificial swarm of bees the first week in August by driving a very strong swarm to give to a queen. Three weeks later they all came out of the hive, and endeavoured to unite themselves to a strong stock nine or ten yards distant, the result being nearly all were stung to death. What puzzles me is, that although the queen had not begun to lay eggs, there was plenty of sealed honey in the bars of comb, the young brood I had started them with having been hatched out. Perhaps it is wrong of me, but I do envy some of my brother bee-keepers who get some condemned bees given them to unite with their own. 5. Has the Association a depôt in London where I can get bee-literature?—ANXIOUS INQUIRER.

REPLY TO QUERY No. 705.—1. We advise you to range your three hives in line with the two. Move them about mid-winter, very gently, without jarring or disturbance of any kind, during the dull, cold weather, placing them not nearer than three feet asunder. According to your plan this will give all your hives a south-easterly aspect, which we prefer to all others. Your fowlhouse is not desirable as a domicile for bees, and the aspect south-west is bad, and the sun would not reach them before mid-day. You might, however, utilise that side of your garden by placing there the swarms of next year, bringing them out a distance from the wall, and facing them towards the south. Thus stationed, your queens will breed much earlier than if placed within the house. 2. September is the best month for introducing Italian queens. That being past, you will do well to wait until swarming time, when you should divide your strongest stocks, and give to each queenless part an Italian queen. The remaining English queens may be changed for Italians in the following August or September, when queens are cheaper. Buy queens only, not bees. 3. Queens require a period of rest after the exhaustion caused by summer breeding. Do not stimulate them. Bees bred in August and September will live through the winter, and your bees know best when an increase of population is necessary. We have found hives full of brood in the month of January. If the bees have not sufficient food to carry them through the winter, give them candy on the top of the frames, underneath the quilt, on the approach of spring. 4. In all probability the bees were driven from their hive by robbers. August was too late to divide. Division is most hazardous after the honey-flow has ceased, as robbing, and consequent destruction of newly-made colonies, are certain to take place if not especially protected and carefully watched. It is too late to obtain condemned bees this season, the cottagers having reaped their harvest. 5. An annual subscription of 5*s.* to the B. B. K. A. will entitle you to receive books from its extensive and interesting collection of bee-literature contained in its Library at 105 Jermyn Street, and will also confer upon you various other privileges. Bee-literature is purchaseable from J. Huckle, King's Langley, Herts.

QUERY No. 706.—*Weight of Stock of bees for Winter.*—Could you tell me in the next issue of the *B. B. J.* what weight a stock of bees should be to winter safely, if crowded on five Association Standard frames, in double-walled line, with cork-dust between the walls, cork-dust dummy, and 3-in. tray of cork-dust or chaff on the top of the frames? I mean, if I passed a small iron, similar to a driving-iron, or a strip of wood, under the shoulders of the frames, and passed a string over each end of the iron, and weighed them with a spring balance; that is simply the frames, combs, bees, and honey; this season's combs. I think it will be far better to lay down a certain weight, as in the case of skeps, than to guess, as I think very often guessing means starvation.—F. H.

REPLY TO QUERY No. 706.—In bar-frame hives actual inspection is better than weighing. The combs should be stored to about one-third or one-half their depth in the middle and to nearly the bottom at the sides. Five combs thus stored, with the frames and bees, would weigh about 20 to 25 lbs., and would be a fair store to leave if packed as you describe.

QUERY No. 707.—*Golden Syrup.*—Would it do to give bees golden syrup as sold by grocers? If so, it would save a considerable amount of trouble in boiling sugar, and would not cost any more, as it is sold at 3*d.* per lb. This syrup is just the cane-juice without any sugar being extracted, and does not contain more molasses than Demerara sugar; indeed, it has less of the taste of molasses than syrup made from the sugar referred to, which is recommended by some people in preference to loaf-sugar.—A YOUNG BEE-KEEPER, *Coleraine.*

REPLY TO QUERY No. 707.—Golden syrup is not suitable for bee-food. You are quite wrong in your supposition as to its nature. It is the molasses, or uncrystallisable portion of sugar, left after the whole of the crystallisable portion has been extracted. The clear colour of golden syrup is caused by the use of sulphuric acid and other chemicals. You cannot use anything better than crystal sugar or loaf-sugar, in spite of some people's preference for Demerara. You will also find it cheaper. You can get, at present market value, excellent sugar at a grocer's for 3½*d.* per lb. 5 lbs. to 1 quart makes 7 lbs., for 1*s.* 5½*d.*, or 2½*d.* per lb.

QUERY No. 708.—1. *Water for Bees.*—Can you tell me whether bees get water to drink, or do they carry it to the hive, as I have a spring about fifty yards from my hive, and there is nearly always ten or twelve bees at it? 2. *Frames for Wintering.*—How many frames shall I want to leave in my hive during winter? I have three swarms in one bar-frame hive, and they have plenty of heather honey. 3. *Wax.*—Also will you kindly tell me the way to make wax?—A YOUNG BEGINNER.

REPLY TO QUERY No. 708.—1. Bees require water not only to drink, but also to carry to their hives, where it is required in the preparation of the food for the brood, and for other purposes. 2. Leave as many frames as are well covered with bees on both sides. 3. The process of wax extraction is described in most manuals on bee-keeping and in former numbers of this *Journal*, to which we must refer you. To repeat it would occupy too much space.

NOTICES TO CORRESPONDENTS & INQUIRERS.

E. C. LANDER.—1. *Position of Dummy.*—Put your combs at back of hive and dummy in front; cut a piece out of the bottom edge of dummy 1½ inch by ⅜, and at the side, not opposite the main entrance. 2. *Removing*

Tapes.—When the combs are fixed, which if they are properly tied in will be in forty-eight hours, remove the tapes and slips. 3. *Drone-comb.*—Drone-comb consists of larger cells than worker; drone 16 to the square inch, worker 25. 4. *Winter Treatment.*—You would do better not to trust to candy, at least in the form in which Mr. Hewitt recommends, which is at present almost untried; but feed your bees upon syrup at once, so that it is all sealed over before the cold comes. Better give too much than run risk of starvation. Do not omit to make winter passages through your combs.

A. Snook.—*Uniting.*—If you had put your bar-frame hive at once on the spot occupied by your skeps to be united, the bees would have remained in it. As it is you may rest contented that you have a grand stock, which will probably give good results in spring, most likely better than the two lots would if wintered separately. You will find they require seven frames, or perhaps eight, if each of the stocks were as strong as you say.

T. F. Stafford.—1. *Moving Bees.*—In the winter when the bees are at rest you may move the bees safely into your garden. 2. *Amount of Syrup.*—It depends upon various circumstances, most so whether breeding is going on; if so a pint of syrup each night, for about ten days, should be sufficient, or less if no brood is being raised. Examine how they are storing it, and if some combs are being built very thick and bulged, cut down with a knife, and place face to face to be resealed flat. The cuttings will be cleared up and stored in the others.

H. J. Male.—*Making Syrup.*—Use crystal sugar, 5 lbs. to quart of water. Boil the water and add the sugar. When dissolved and beginning to boil again, add a saltspoonful of acetic acid. This is better than vinegar, as it is pure. Vinegar contains colouring matter and sulphuric acid. Acetic acid is seven times the strength. Boil as hard as you can for at least ten minutes, or until you can no longer smell the acid, which, being volatile, evaporates.

Inquirer, *Bournemouth.*—*Stings of Bees and Wasps.*—As the sting of the honey-bee is barbed like an arrow, she can seldom withdraw it if the substance into which she darts it is at all tenacious. The sting of the bee is about one-tenth of an inch; it is slightly curved at its point for about one-sixteenth of its length. In losing her sting, the bee parts with a portion of her intestines, and soon perishes. The sting is easily removed by a slight touch of the finger. Hornets, wasps, and other stinging insects are able to withdraw their stings from the wounds, their stings having smooth points. The application of the hollow barrel of the key to the place stung is not for the extraction of the sting, but for the extrusion of the virus or poison injected by the wasp or bee.

F. Search, *Epsom.*—*Parasites.*—The parasites on the bees forwarded are *Braula cœca*. We gave a detailed account of them, with illustrations, in our number for April 1, page 279. We shall be pleased to have your 'theories' respecting them.

J. P., *Hayward's Heath.*—*Mead.*—On page 128, No. 128, you will find a receipe for making this once popular drink. Please refer to it.

E. Holliday, *Marlborough.*—1. *Queenless Stock.*—The building of queen-cells would indicate that the stock was queenless; the success of your driving operation appears very doubtful. 2. *Unsealed Stores.*—Had there not been a cessation of ten days in feeding, a greater portion of the cells would doubtless have been sealed over by this time. At the beginning of October it is desirable that stocks should be fed rapidly, so that as many of the cells as possible should be sealed over before the approach of cold weather. Unsealed syrup should then be extracted, as the consumption by the bees of the watery food is likely to cause dysentery. 3. *Double Walls.*—The space between the hive and the outer covering should be filled with chaff or other materials, or they may be arranged so as to form double walls to the hive, with dead air between them. 4. *Moving Hives.*—The hives may be moved the distance mentioned during winter, when the bees are at rest.

H. C., *Warwickshire.*—1. *Syrup.*—If your bees show a preference to syrup made from loaf sugar to that made from Demerara, there can be no objection to their continuing it. 2. *Milk Food.*—This has been tried with success by bee-keepers in America and Germany. Only one report of its use has reached us here, viz., from Mr. Ditty, of Newtownards, Ireland, which was not of the most assuring nature; his bees, under its influence, showing a strange propensity to ball their queens. His recommendation to British bee-keepers was 'to go very slow about the milk-and-egg business.' 3. *The Rapidity of the Flight of the Bee.*—It is estimated that the rapidity of the flight of bees is about thirty miles an hour.

F. Boyes, *Beverley.*—1. *Manipulation.*—Bee-keepers, when manipulating with bees, generally use smoke; with some stocks it may be, and frequently is, dispensed with, but it is desirable to have the smoker close at hand. 2. *Carniolan and Ligurian Bees.*—Carniolan bees have the character of being good-tempered under manipulation, and in handling them the smoker is not frequently brought into requisition. They are addicted to swarming, and their honey-gathering powers are not equal to those of blacks. It is difficult, except when completely isolated, to keep bees pure, as they naturally avoid in-and-in breeding. The distance of a mile from other apiaries will not be sufficient to keep them from consorting with other varieties. We believe in the superiority of the Italian or Ligurian bee over the black. The evidence that has been forwarded to us from all quarters during the season has been to the effect of their marvellous breeding powers. Dr. Dzierzon says:—'The Italian is especially a honey-bee. In excellent seasons all stocks of any strength become full of honey, but in bad seasons, that are not very rare, even young Italian and hybrid stocks show a good quantity of sealed honey, while others are nearly empty. No other result could be expected from their untiring industry and insatiable greediness to get honey, even after the principal harvest, out of every flower, out of sweet fruits, and even out of other hives.' An incidental evidence of their honey-gathering powers is afforded in our report of the Suffolk Show (see page 189), where it says that a stock of Italian bees gathered 160 lbs. of honey during the season.

M. B., *Worton.*—1. *Smokers.*—Bingham's Smokers may be procured from any respectable dealer in bee-appliances. See letter signed 'J. M.,' on p. 194. 2. *Empty Frames.*—It would be desirable to take away the empty frames, and close up. 3. *Earwigs.*—These seek the hives for the warmth afforded by the quilts. They are so lithe and nimble, and being winged, that there is considerable difficulty in keeping them away. Hives should be so well made that there should be no chinks or junctures by which they effect an entrance.

D. Henderson, *Strathtay.*—*Wintering.*—Your bees, being 'to the manner born,' would remain safely in the open, properly packed and sheltered, entrances narrowed, and the roofs so prepared that they are proof against snow and driving rain. If you entertain any fear from your elevation, there can be no harm in wintering as you propose.

J. B.—We do not consider it desirable to mention the names of tradesmen, as it might be deemed invidious by those not named. Our advertising columns should furnish the information desired. We are precluded

from sending the names privately, as you have not complied with our rule, your name and address not having been forwarded with query.

L. M. SMITH, *Blackheath.*—1. *Packing for Winter.*—Your mode of packing for the winter will answer its purpose. The space between the hive's side and the dummies should be filled up with chaff or a chaff-cushion. 2. *Stimulative Feeding.*—At the beginning of October stimulative feeding should be discontinued, and the bees fed as rapidly as possible, that the cells may be sealed over before the cold weather comes. Unsealed syrup, being undesirable, should be extracted, as dysentery may ensue from the consumption of watery food. In the event of your hives not being so heavy as they should be, and hives should contain from 20 to 25 lbs. of sealed stores, candy may be placed over the frames towards spring. There is no objection to the use of barley-sugar.

Would your correspondent, Arthur B. Lipcombe, kindly say if he found it necessary while taking 75 lbs. of honey to cut out any queen-cells?—J. B.

A. G. R.—We have attended to your suggestion.

In consequence of the extent of the reports of Shows, we have reluctantly been obliged to postpone 'Foreign Intelligence,' 'Useful Hints,' and several other communications.

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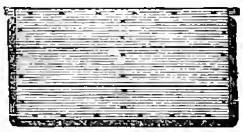

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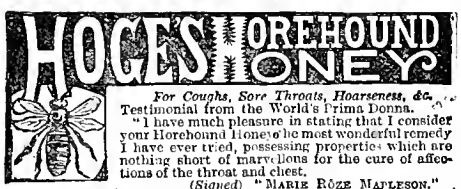
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THE AMERICAN BEE JOURNAL

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LANGSTROTH HIVE, 20 to 30 lbs. Honey, strong Stock-bees, 10*s*.; superior Wire-gauze Bee-veil, 1*s*. Crisp, Halstead. A 30

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STRAW (Skep) Hives, flattened Tops, Feeding Hole, price 1*s*. 6*d*. I. Gadd, Wokingham, Berks. A 34

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WANTED.—Run Honey; also Sections. Apply W. Ransford, Chemist, Clevedon, Somerset. A 36

CHANGE OF ADDRESS.—Mr. C. Brown, Expert to the Worcestershire Bee-keepers' Association, has moved from Dudley to Elm Cottage, Bewdley (Worc.) 41

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State Agricultural College, April 14, 1883.

THE BEST BEE FEEDER for Autumn use is BUTT'S NEW FEEDER, made of White Stone China, the merits of which were fully described by the Editor of this *Journal* in the issue of June 1st, p. 43. Among other advantages, this Feeder is so constructed as to admit of the Bees feeding readily, and with perfect safety; and the loss of heat to the Hive (a fault common to many Bee Feeders) is entirely obviated. Being made of white ware it can be more easily cleaned than either zinc or tin, and keep the food sweeter and fresher, and cannot rust. This Feeder has been tried by many experienced Bee-keepers and Experts and pronounced perfect. Sent post free to any address for 3*s*. 6*d*. Trade price on application. Edward J. Butt, Manufacturer of Bar-frame Hives and Apiarian Appliances, Scotland House, Barnstaple. (42)

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BEES.—SWARMS of LIGURIAN, or ENGLISH BEES, for early Spring delivery. Prices: ENGLISH, 15*s*. and 20*s*. per Swarm. LIGURIANS, 7*s*. 6*d*. per lb. QUEENS, 7*s*. 6*d*. extra.

Questions on Bees and their Management answered by return of Post, 3*d*. Stamps. 'Modern Bee-keeping,' 7*d*. 'Bee-keepers' Guide,' by T. W. Cowan, Esq., 1*s*. 8*d*. post free. ILLUSTRATED CATALOGUE and PRICE LIST will shortly be ready, 2*d*. Stamps. Send 1*d*. Stamp for Price List.

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Irish Bee-keepers' Association.

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WILL HOLD A
SHOW of HIVES and HONEY
IN CONNEXION WITH
The Dairy Show of the Royal Dublin Society,
AT BALLS BRIDGE, DUBLIN,
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WEDNESDAY, the 24th Oct. and two following days.

A Salesman will be provided for the Sale of Honey.

Applications for Prize Lists and Entry Forms to be made to—Mr. D. G. ROGERS,
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A HIVE AND HONEY SHOW

IS TO BE HELD

At YEOVIL, on Friday, Oct. 12th, 1883.

PRIZES will be offered for HIVES,
Not exceeding 15*s*., and not exceeding 10*s*.
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Entries Close on October 10th.

Further particulars can be obtained on application to the Hon. Secretary—

REV. CHARLES G. ANDERSON,
Otterhampton Rectory, Bridgewater.

Lincolnshire Bee-keepers' Association.

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OF

BEES, HONEY, HIVES, &c.

WILL BE HELD IN THE

WESTGATE HALL, GRANTHAM,

On Friday, 19th October, 1883.

PRESENTATION OF PRIZES AT THE CLOSE.

Exhibitors will have the privilege of their Exhibits being offered at the GREAT HONEY FAIR to be held on the day following.

Schedules of Prizes and Entry Forms on application to

R. R. GODFREY, *Hon. Sec.*

GRANTHAM HONEY FAIR.

THE GREAT ANNUAL

HONEY FAIR,

Under the auspices of the Lincolnshire Bee-keepers' Association,

WILL BE HELD IN THE

WESTGATE HALL, GRANTHAM,

On SATURDAY, OCTOBER 20th (Market Day).

Salesmen will be provided: but Members, as also Non-Members, are especially invited to attend to Sell their own Honey, and take their own money.

No Entry Fees. Members' Honey sold free of commission. Non-Members charged at the rate of 10 *per cent. on their sales.*

All Honey and Wax to be consigned to the Hon. Sec. of the Lincolnshire Bee-keepers' Association, Westgate Hall, Grantham, and must be delivered not later than 6 p.m. on Friday, the 19th October. Forms on application to

R. R. GODFREY, *Hon. Sec.*

GRANTHAM, *Sept. 25th*, 1883. Lincolnshire Bee-keepers' Association.

FREE ADMISSION TO THE FAIR.

THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, w.c.'

[No. 132. VOL. XI.] OCTOBER 15, 1883. [PUBLISHED FORTNIGHTLY.]

Editorial, Notices, &c.

BRITISH BEE-KEEPERS' ASSOCIATION.

The next Quarterly Meeting of the representatives of the affiliated County Bee-keepers' Association will be held at 105 Jermyn Street at 4 p.m. on Wednesday, the 17th inst. A Conversazione will be held at 6 p.m.; subject for discussion, 'The Chemistry of the Hive,' to be introduced by Otto Hehner, Esq., F.C.S. Mr. Hehner's abilities as a lecturer are so well known, a large attendance of members may, therefore, be anticipated.

THE ECONOMIC APIARIES COMPETITION.

In our next issue we hope to be able to give a full report of the awards in this Competition, together with an exhaustive report from the Judges, and the information contained in the diaries of the several competitors relating to the several methods pursued during the progress of the Competition. We have reason to believe that this report will be of a thoroughly interesting and nstructive character.

USEFUL HINTS.

The season, with the mean temperature six degrees below the average of the past twenty years, with raw, cold, foggy nights, the prospects of negligent bee-keepers are not at all improved. We have been doing our best to prevail on all to get their work well forward before the cold weather sets in; but it has come, and found many unprepared, if we may judge by the number of queries we are getting on subjects more seasonable in July and August. As the ranks of bee-keepers are rapidly being swelled with young members, we may be borne with if we again repeat what we have been trying to impress continuously—*that successful wintering is the secret of success.* It is the sort of weather we are now getting that does far more harm than a wringing black frost. In cold, dry, frosty weather bees will cluster into a mass in the centre of their hives. and there keep as long as that kind of weather lasts; but the weather we are now getting keeps up activity, more or less. The hives are permeated with a cold, damp air, and the consumption of food, and consequent consumption of tissues of the bees, is greater, and so the numbers are thinned. It is consequently the great aim of the successful bee-keeper to do all that skill and forethought can devise to mitigate these evils. We will not advise what to do, but what ought already to have been done, so that there is now no need of disturbing the bees. So for the benefit of those who are behind we will enumerate a few items:

FOOD.—All hives should now have sufficient sealed store, so that feeding should now cease. If there is a large quantity of unsealed food in that portion of the combs that is usually used as the brood-nest, it should be extracted, but if the amount is small we prefer leaving it. Extracting so late in the season upsets the bees so as to become the greater evil of the two.

WINTER PASSAGES should be cut in the combs about 4 in. from the top bar. The combs with the greater number of empty cells should be placed in the centre, and those with the largest amount of store on the outside. Bees cluster better on empty cells than on sealed stores.

FRAMES not covered by the bees should be removed, and the bees should be crowded into as small a space as possible. If those frames that are removed have sealed store in them, they should be kept in a clean, warm place till spring, when they may be useful to help a colony that has run short of stores.

QUILTS.—Bad fitting quilts and those that are placed on in a slovenly manner are a most fruitful source of dysentery. They should not only fit well, but be very carefully placed, so that there is not the least chance of a cold draught playing through the hives all winter. Cork-dust, chaff, or saw-dust from fir-wood, are all excellent for filling up the space outside the dummies. If the dummies do not fit down on the floor-boards, slips of wood should be first laid to prevent the bees from carrying out the packing every fine day during winter.

CUSHIONS are more trouble at first to make and fill, but with the help of our fair friends that may be overcome. The advantages of easy removal for examination in winter, if necessary, is so obvious as to be beyond comment.

BEE-HOUSES and hives in exposed positions should be well secured before November gales are upon us. We have personal reasons for giving this piece of advice—reasons of 'unhappy memory.'

LIGURIANISING.—The fact that queens can now be had for a small sum may induce many to attempt to introduce foreign queens; but the chances of failure, and a consequent queenless hive all winter, are so many as to quite outweigh any apparent advantage on the score of cheapness.

So we hope all that have not done so will at once see that their hives contain a goodly number of bees, have ample stores, little room, plenty of packing, well-fitted quilts, and a water-tight roof, when they may be considered to be in favourable conditions for wintering.

BEE-MASTERS OF Y^E^ OLDEN TIME.

REV. C. BUTLER, D.D., AUTHOR OF THE 'FEMININE MONARCHIE.'

QUERY.—Can you inform me Dr. Butler's method of management, description of hives in general use, and how the honey was extracted from them, whether by driving or by suffocation; if by driving, what was done with the bees? Were they united to some other stock as now? If so, please describe this operation.—J. P.

It must be a great relief to our correspondent, after having passed through the erudities of Aristotle and the

uncertainties of Columella, to come, as with the feeling of a home-bound mariner, within sight of the *terra cognita* of English bee-keeping. As Dr. Butler grows on our vision, we feel that we are approaching a haven and a rest, and that when we place ourselves under his guidance we shall have no difficulty in acquiring a clear idea of bee-keeping in the time in which he lived and moved. Dr. Butler has earned, and deservedly so, the high name of 'Father of English Apiarians;' and we are deeply indebted to him for his clear utterances respecting bee-keeping in the days of Queen Elizabeth and her successor. Before him all was darkness, with him we emerge into light. We regret that we know so little respecting his outward life. Born in the year 1559, at High Wycombe, Bucks, he entered Magdalen Hall, Oxford, in the year 1579. About 1600 he became vicar of Wootton, St. Lawrence, a small parish in the neighbourhood of Basingstoke, and he remained there till his death in 1647, having attained the ripe age of eighty-eight. In the year 1609 the first edition of his work, entitled *Feminine Monarchie: or, the History of Bees, and the Due Ordering of them,* was published at Oxford. This work concludes with a long and learned homily on the duty of all men, but bee-keepers especially, of paying tithes to whomever they are due. During his lifetime were issued two other editions, 1623 and 1634, both in 4to., the latter containing 198 closely-printed pages. In 1673 Dr. Butler's first edition was translated into Latin by R. Richardson; and this appears in 1704 to have been re-translated into English. Having a well-selected library of classical and patristic works, a cultivated taste, and a mind at leisure with itself, he diversified his apiarian pursuits by studying other branches of knowledge. He wrote several works, among others *The Principles of Music* and *Oratoria*, the latter evidently the work of a scholar of the greatest profundity. Dr. Burney, a great authority in musical matters and the author of the *General History of Music*, says of his work on music: 'It contains more knowledge of music in a small compass than any other of the kind in our language.'

To show the versatility of his mind, and to prove that Dr. Butler was a man in advance of his age, he formulated a mode of phonetic spelling, and his works on Bees and Music were the first that were printed in phonetic characters in the English language. This, however, was not appreciated in former days. Dr. Burney says, 'The Saxon and new characters he uses render his musical tract difficult to peruse.' It is only in recent years that the phonetic mode of spelling has received approval: and therefore we may adduce this as a proof of Dr. Butler's far-sightedness, and hail him as a leader in a movement which in the present day is making forward strides.

Dr. Butler living upwards of two hundred years ago, we can easily conceive that he had a slight acquaintance with many of the principles of bee-keeping which are well known to us in these days of 'light and leading.' In his time bar-frames were not known, and observatory hives were not invented, and it is easy to understand how he continued to maintain many of the errors and mistakes of those who preceded him. The wonder is that in such far-remote times he should have possessed such a profound intimacy with the constitution and management of bees.

Though he had the knowledge that the queen was the head of the hive, yet he had not a clear idea that the queen-bee was the mother of all the inhabitants of the hive, the enunciation of which fact was reserved for the Rev. S. Purchas, who in p. 88 of his work entitled *A Treatise of Politicall Flying Insects*, published in 1657, gives the ruler of the hive her true definition of 'Queen Mother.' Dr. Butler's idea was that the queen-bees begat only lady-bees, and that in special cells, which 'for the most part are outside of the combs, these cells being larger than the rest, to show that subjects' houses should not match their sovereign's houses in greatness.' He does not believe that worker-bees are undeveloped females: for he says, 'Honey-bees are the females by whom the bees of both sexes (first the females and then the males) are bred.'

Our reply would extend beyond our limits were we to attempt to give a full account of Dr. Butler's management of bees; let it suffice, for the present, our answering the special matters which are mentioned by our correspondent.

I. *Hives.*—The hives used in Dr. Butler's day were of two kinds,—either straw hives bound with brambles, or wicker hives made of privet, withy, or hazel, daubed with cow-dung, tempered with gravelly dust, sand, or ashes. As these straw-hives when old or when laden with honey and brood had a tendency to sink in on the sides, they were strengthened with spleets or sticks inserted in the hive, and by a piece of wood called a 'cop,' which filled the concavity at the top of the hive, with a hole in the middle for the spleets to rest in. The form of the hives was similar to the skeps in use at the present day. An ordinary size was one which would contain three pecks, the dimensions of which were seventeen inches from top to floor-board; fifteen at centre, diminishing to thirteen at the floor-board. Much care was taken that the interior of the hives should be perfectly smooth, and the whole covered with a hackle made of 'four or five good handfuls of wheat or rye leased out of the sheaf,' and bound so together that it would take the form of a pyramid for shooting the rain. The hive had a summer-door, which must be of sufficient size, four square inches, so that the bees should have free ingress and egress without letting one another. In winter the entrances were narrowed in order that the bees may keep out robbers, that the cold may have less force, and that the snow may not enter. There were other necessaries provided for the hives that they might be perfectly secure for the winter.

II. *Mode of taking the Honey.*—1. By killing the bees. The time most favourable for this process was in August. Great pains were taken in the selection of the stocks to be taken: the result of which was that he advises that the best and the worst should be taken, as *in medio virtus*. As our correspondent desires that the details of the mode of suffocation as performed in Dr. Butler's time should be explained, we extract it in full, adhering to the spelling, but modernising the phonetic letters:—

'Having made chois of your Stall to bee taken, soom two or three hours before Sun-set, dig a hoal in the ground (as neere the Stoole as may bee) about eight or nine inches deepe, and almoste as wide as the Hive-skirts: laying the small earth round about the brims. Then having a little stik slit in one ende, and shript at the other, take a Brimstone-mach five or six inches long, and about the bignes of your little finger, and making it fast in the slit, stik the stik in the middle of the bottom, or in the side of the hoal; so that the top of the Mach may stand even with the brim of the pit, or within one inch of it: and then set an other by him drest after the same manner, if that bee not sufficient. When you have fired these Maches at the upper endes, set over the Hive; and presently shut it close at the Skirts with the small earth, that none of the smoke may coom foorth. So shall you have the Bees ded and donn in les than a qarter of an hour. But a mooveable Pit is better,' &c.

2. Another way of taking the honey is by driving, which is very similar to that practised at the present day:—

'At Mid-soommer, or within two or three days after, in a fair morning an hour before Sun-rising, lift the stall from the stoole; and set it upright and fast on the ground in a Brake, with the bottom upward: and qikly coover it with an empty Hive; having first laid two spleetes upon the ful Hives bottom, that the empty Hive may stand the faster. Then wrapping a mantle round about the Chink or meeting

of bothe the Hives, and binding it fast with a small cord aboov and benethe, that a beee may not get forthe; clap the full Hive or *Remoover* round about a good many times (pausing nou and then a little betweene) that the Beees may ascend into the void Hive. And when you think that moste of them ar Driven up (which will bee about half an hour after) set the upper Hive or *Receiver* upon the olde stoole: But bee sure,' &c.

This mode is not approved by Dr. Butler, as the honey at that time is not ripened and it is mixed with grubs, and as there still remain six or seven weeks of honey-gathering, the bees are discouraged and seldom thrive afterwards. Another mode of driving is as follows:—Two stalls, the remover and receiver, are placed as near together as possible, and allowed to remain in that proximity six or seven days. On a fine evening, about ten o'clock, the remover is placed bottom upwards with the receiver upon it, and bound close together, as in preceding instance. The remover is then clapped for a quarter of an hour, and the bees are left mingled together till next morning at sunrise. The receiver is put on the remover's place, raised from the floor-board, that the bees may have free ingress. The bees are again shaken from the remover, and the remover is taken from place to place, the clapping ever proceeding, till the bees leave it; and then the spleets are taken out of the hive, and the combs are cut out one by one. This mode was practised at two seasons of the year; namely, in August and in January or February.

3. Another way of taking the comb is by exsection or castration, an explanation of which we gave when treating of the management of bees in the time of Columella; but Dr. Butler says that however desirable this practice might be for foreign countries, for our country 'it be very unfitting.'

Here we must stop for the present, but what we have given of Dr. Butler's mode of management will afford sufficient evidence of the very considerable knowledge of 'the ordering' bees possessed by him, and that humane modes of getting honey without sacrificing them were not unknown to him.—G. H., *Ealing*.

BEE-KEEPERS AT HOME.

No. III.—Mr. Alfred Neighbour at Regent Street, London.

(*Continued from page* 188.)

Mr. Thomas White Woodbury, as well as Mr. Taylor, was a valuable contributor to the *Journal of Horticulture*. He always wrote under the *nom de plume* of 'A Devonshire Bee-keeper,' because he said he preferred not seeing his name so continually repeated. His father was part proprietor and editor of the *Exeter and Plymouth Gazette*, and he himself also took an active part in the management of the paper, so that in early life he acquired an aptitude for journalism which stood him in good stead in after years. Having retired from business when comparatively a young man, with sufficient private fortune, bee-culture offered him a congenial pursuit. Before the introduction of the Italian bee, Mr. Woodbury kept within the limits of four stocks of bees, the produce from which he found amply sufficient to supply his family and friends; but as a result of the interest taken in his articles in the before-named Journal, a demand sprung up for stocks and swarms, so that he greatly increased his apiary in order to keep a supply ready. The apiary was much surrounded by houses, and was an instance of what a skilful man could accomplish in a small garden, that appeared rather unsuitable for so large a number of hives.

In the year 1863 the Bath and West of England Agricultural Society held their annual show at Exeter, at which Messrs. Neighbour exhibited their hives and living bees. During the show Mr. Alfred Neighbour (who was in attendance) was Mr. Woodbury's guest, and under his hospitable roof made the acquaintance of several bee-keeping friends. Amongst them was Mr. George Fox, of Kingsbridge, with his cousin, Mr. S. Bevan Fox, and Mr. Henry Dieck (the joint translator of Dr. Dzierzon's work), then resident in Exeter, with all of whom a lasting friendship has been maintained.

At the time of Mr. Neighbour's visit, Mr. Woodbury's apiary was suffering from a virulent attack of 'foul brood,' and it was a melancholy sight to see him probing the infected cells with a pointed instrument, and hoping that the bees would clean the combs, which of course they did not. The disease was not then understood as it is now. The use of salicylic acid was not known in those days, and Mr. Woodbury had to break up the combs, cleanse his hives with chloride of lime, and set his bees to start afresh. All this calamity he openly published in his contribution to the *Journal of Horticulture*. Unlike some who only tell of their successes, Mr. Woodbury freely communicated his reverses; and this publicity drew down on him some Job's comforters, who attributed his misfortune to his constant manipulations. Mr. Woodbury replied to them, that feeding with foreign honey, supposed to be infected, brought the disease to his hives. At that time (June) the apiary was so decimated that he confessed that in all the colonies there were not so many bees as are usually found in one strong stock.

Mr. Woodbury's masterly controversy with Dr. Cumming in the columns of the *Times* newspaper, in the year 1864, will be long remembered. He exposed the inaccuracies into which the Rev. Doctor had fallen when relating his bee-keeping experience in the leading journal in a tone which, though devoid of acrimony, were dealt with no unsparing pen, showing to all on-lookers the vast difference between one who understood the habits and management of bees and the other who was only partially informed on the subject.

Soon after the introduction of the Ligurian bee, Mr. Langstroth,* the American apiarian, published his work, *The Hive and Honey Bee*, which described his invention of hives on the bar-frame system, and at the same time bar-frames were also brought to notice in Germany by Baron von Berlepsch, who made improvements on Dr. Dzierzon's method. Thus in both hemispheres inventive minds were at work and hit upon similar discoveries, neither having any knowledge of the labours of the other. Mr. Woodbury was not slow in estimating the value of this invention, and in order to adapt the combs of his bar-hives to it, he constructed what he termed 'a compound frame,' which consisted of a frame with open top and shoulders on each side on which the bar rested, whilst the comb as taken from the hive was suspended vertically within the frame. This answered in the careful hands of Mr. Woodbury, but being disjointed and not a firm frame was productive of many disasters with less skilful manipulators, so much so, that Messrs. Neighbour, who were the first vendors of Woodbury hives, resorted to the fixed frames as originally planned, and which have been in use ever since.

In order to accommodate the frames Mr. Woodbury had to enlarge all his hives, and as he did such handicraft himself the alteration cost him some little labour, but it was work with which he was quite at home. As an amateur carpenter and cabinet-maker, or turner, he was unsurpassed, his workmanship was really beautiful; in fact, in this, as in other matters, whatever he set his hand to he did thoroughly well. During his last illness he expressed his deep regret that he had not during the time of health given to the world the benefit of his large experience in a thoroughly comprehensive work on the

* In 1860 Mr. Langstroth presented a copy to Mr. Neighbour with a kind note.

honey-bee. The only treatise he wrote, apart from his contributions to the periodicals, was an essay of some eighteen pages in the *Bath and West of England Journal*, which was afterwards reprinted and published in a pamphlet form.

The second London International Exhibition was held at South Kensington in 1862, at which Messrs. Neighbour exhibited living bees and hives. The space awarded was in the Agricultural Annexe, a location not nearly as good as that in the first exhibition of 1851.

It is worthy of notice that the Italian bees exhibited by Messrs. Neighbour attracted the attention of Mr. Edward Wilson, proprietor of the *Melbourne Argus* newspaper, who took so much pains to acclimatise animals in Australia. He ordered four stocks. These were sent to Melbourne by steamer, and arrived out there alive. They afterwards further increased and prospered quite as much as was anticipated. Three more stocks were shipped by sailing vessel, but owing to the longer time on the voyage were all dead when they reached their destination.

Since that time several colonies of Italian bees have safely been sent to India and other distant colonies; and Mr. Neighbour in recent years has been much engaged, with the aid of Mr. Duncan Keir of Scotland, who was introduced to Mr. Neighbour by 'The Renfrewshire Bee-keeper' (J. M. McPhedran, Esq.), from whom also many valuable hints were given to assist the enterprise, in packing and forwarding humble bees to New Zealand during winter and whilst in a torpid state. Just sufficient success has attended these efforts to prove that the scheme is possible, two queens of the *Bombus terrestris* having reached New Zealand alive. These bees are much needed in the colony for the fructification of the red clover, the blossom of which is inaccessible to the ordinary honey bee. The point to be gained is to obtain seed without the necessity of having each year to import from other countries.

The importation of Cyprian, Syrian, and Holy Land bees has also claimed much of Mr. A. Neighbour's attention. Mr. Frank Benton, who, as is well known, has made a temporary home in Cyprus and Syria for the purpose of procuring queens from native sources, was accustomed to forward small colonies of these bees to Mr. Neighbour to be refreshed at his apiary, and re-shipped to Mr. D. A. Jones, in Canada. Some of the earlier consignments were very satisfactory, but, owing to a change in the packing, the business became so discouraging (but few queens survived), that it was discontinued by him. Mr. Neighbour was the first to introduce the Carniolian bees into this country. He continues to cultivate and recommend them for their docile qualities.

At the Swiss or German department Mr. Neighbour purchased the impressed metal plates for making wax foundation. Many castings were made from the original and disseminated to various parties. One pair of plates was sent to New York, and there is some reason to believe that these found their way into the hands of an ingenious German mechanic, who invented the impressed roller machines which have so completely superseded the flat plates.

From the foregoing it will be seen that Mr. Neighbour enjoys unusual opportunities of becoming acquainted with the leading apiarian celebrities of the day, and from such company the name of the Rev. William Charles Cotton, M.A., Rector of Frodsham, Cheshire, must not be omitted. Mr. Cotton, who was a frequent visitor at Mr. Neighbour's, and is known to have been an ardent lover of bees, wrote a work entitled *My Bee-book*, published in 1842, also two pamphlets, *A Letter to Cottagers*, and *A Manual for New Zealand Bee-keepers*, in 1848. In 1872 he translated from the German and rendered into English rhythm a comic work entitled *Buzz-a-Buzz*. Mr. Cotton went out to New Zealand as domestic chaplain to the Bishop of that island, and took some living bees with him. He was an accomplished scholar, and possessed many amiable qualities. He was the elder brother of Lord Justice Cotton, and died in July 1879, aged sixty-six years. Another celebrity with whom Mr. Neighbour exchanged several visits was Dr. Coster, of Hanwell, but as reference has previously been made to him in the memoir of Mr. Abbott, little more need be said except to endorse all that is there mentioned, and to express regret that one so kind-hearted and learned should thus early have been removed by death. He was one who seemed to live for others rather than for himself, so willing was he to impart his information.

In 1880 Mr. Neighbour attended, in company with Mr. S. Stutterd, the translator of Dr. Dzierzon's book, the German meeting of bee-masters at Cologne, at which his firm were exhibitors, and received from the hands of the Burgomaster at the public distribution of prizes the State silver medal. Mr. Neighbour, on his return, wrote an account of his visit, which was published in the *Journal of Horticulture*. He had the pleasure of being introduced to most of the leading bee-keepers attending the Congress, which included Dr. Dzierzon, Herr Vogel, the Baroness von Berlepsch, Dr. Pollman, and many others. The Congress proved a time of much apiarian interest.

Reference has been made to Mr. Neighbour keeping bees at Dorking, but before this he had a Unicomb Hive at his father's previous residence at St. John's Wood, which was very successful and an object of interest to many apiarian friends and visitors. At Dorking 'foul-brood' unfortunately broke out in his apiary, and a convenient plot of ground offering at West End, Hampstead, he began afresh nearer London, which was so much more convenient for him. Over twelve years' tarriance at Hampstead was brought to a close a year and a half since in consequence of the ground being required for building purposes; so a place had to be sought for more removed from the liability of such disturbance. At page 165 of this *Journal* a description will be found of Mr. Neighbour's present apiary at Hemel Hempstead, therefore no further allusion to it need be made here.

Mr. Neighbour is the author of a work on bees entitled *The Apiary: or, Bees, Bee Hives, and Bee Culture*, which has passed through three editions. He has a library containing perhaps the largest and best collection of books on the subject of bees and bee-culture of any one in the kingdom, many of the works being of great age and very rare.

ASSOCIATIONS.

KENT BEE-KEEPERS' ASSOCIATION.

A Meeting of the Dover district branch of the above Association was held at River on Wednesday evening, October 3rd, 1883. Members were present from Dover, Hougham, and River; Mr. Wm. Pierce in the Chair; Mr. Wyatt J. Pettit, Hon. Secretary.

Mr. Pettit said:—This Meeting was held for the purpose of promoting the culture of the honey bee, and for the assistance of those who kept bees on scientific principles. As there can be no question that the honey season in England is short, therefore bees ought to be fit for work as early as possible. The question arises in reference to the introduction of Ligurian queens, as it is said, they breed earlier, and thus tend to promote this object; and, further, the Ligurians are more docile and more hardy than the common English bee. It is decided that the duration of the life of the worker-bee in summer does not exceed six weeks, therefore the introduction of imported queens in the autumn, when they are cheap, is the same as if a swarm of these beautiful bees had been procured in the swarming season, for the queen is impregnated prior to her leaving Italy; her

Progeny therefore is pure Ligurian, and not half-bred or mongrel, as some have supposed them to be, and by thus introducing a new queen it is much cheaper than a swarm.

It was decided to adopt the standard bar-frame, as manufactured by Mr. W. J. Pettit of the Apicultural Institute; bar-frame hives being decidedly superior to hives with fixed combs; and it is further decided that the old straw hive is not to be altogether discarded, but the brimstone pit is, as brimstone contaminates the honey, and really spoils it with its fumes, and makes honey disagree with everybody; while honey in its pure state agrees with all who partake of it. The next Meeting will be held on the first Wednesday evening in November next.—Wm. Pierce, *Chairman.*

BUCKINGHAMSHIRE BEE-KEEPERS' ASSOCIATION.

The first Annual Exhibition of Bees, Hives, Honey, &c., was held in connexion with the Buckinghamshire Agricultural Society at Great Marlow on Thursday, September 20th.

The Committee wisely determined not to offer too large an amount in prizes at their first show, but have endeavoured as far as possible to teach the residents of the county new and better methods of bee-keeping by sending round experts to visit the members at their homes, and by the attendance of their bee-tent at local shows.

Prizes were offered for supers of honey—honey in 1 or 2-lb. sections, and for run or extracted honey in glass jars. These classes were open to members of the Buckinghamshire Bee-keepers' Association only residing within the county. A very creditable display was made, nine entries being made for honey in sections, Mr. Lane and Mr. Lacy, of Wycombe, taking first and second prizes. Mr. Lacy was also a very successful exhibitor in the class for extracted honey, taking first and second prizes.

There was an open class for collection of bee-furniture, the prizes being awarded as follows:—1, T. B. Blow; 2, Abbott, Bros.: 3, S. J. Baldwin. The Rev. F. C. Sclater and Mr. J. B. Graves acted as judges in the open class; the honey being judged by Mr. S. J. Baldwin, Mr. Abbott, and Mr. Buller.

The arrangements for the exhibition were admirably carried out by the Rev. S. R. Wilkinson, who acts as the local District Secretary. The Rev. F. C. Sclater was also in attendance throughout the day, and was most assiduous in his labours to promote the success of the exhibition.

Foreign.

ITALY.

Advices from the central provinces state that a National Exhibition is being organized under the auspices of the Ministry of Agriculture, to be held at Modena, on the 17th, 18th, 19th, 20th, and 21st of November next, at which apiculture will be largely represented. For the bee section, one gold, two silver, and three bronze medals have been assigned, as well as two diplomas of honour, and three hon. mentions. In the Implements group, besides the usual ones, a special prize will be offered for the best hive likely to commend itself to the labouring classes for its simple construction, easy management, and cheapness. Honeys will be divided into two classes, so as to keep separate the produce of hilly districts from that of the low lands.

A friendly gathering of bee-masters is also being organized at Jesi, and will be held in the rooms of that association. The object of the meeting is to impart to all comers the successful principles advocated in the best-conducted apiaries of that district. So long as the meetings last the apiary of that association will be kept open to all visitors, for whose benefit and instruction a collection of the most modern implements used will be on view.

FRANCE.

The prospectus has been issued of an International Exhibition to be opened at Nice, on the 1st of December next, and to close on the 1st of May, 1884, at which there will be a special class for 'Processes, Materials, and Products of Bee Keeping.' Further particulars can be obtained from the official agents, Messrs. J. M. Johnson and Sons, Limited, 1 Castle Street, Holborn, London.

In continuation of the comments already made upon the show recently held in Paris, the *Apiculteur* says, 'The visit paid to the exhibition by the Minister and Director of Agriculture had greatly pleased both the exhibitors and promoters of the show. These two high functionaries made a very careful examination of the exhibits in general, taking particular notice of all those to which prizes had been awarded. They further attended the meetings which were held on that day, and, before leaving, gave every assurance of their satisfaction at what they had seen and heard in the course of their visit. The distribution of prizes which followed was witnessed by a crowd which entirely filled the room. A banquet was subsequently held at which fifty persons sat down. During the repast, samples of wines, and liqueurs flavoured with honey, were freely tasted and commented upon, and the whole proceedings were closed by a series of toasts and speeches both to the point and animated.'

SWITZERLAND.

Alluding to the effect of the recent weather upon Swiss apiculture, the *Bulletin d'Apiculture* remarks that the latter part of the season has so completely failed in most districts that the question of at once providing their bees with artificial food for the coming winter ought to occupy the immediate attention of every bee-keeper. 'As far back as the month of July,' the editor adds, 'we have been hearing of swarms dying from starvation. At Allevays (where the editor's apiaries are situated) we should have lost many a colony, had we not provided them liberally with food, and instead of taking some honey during the second crop, we have had to provide our bees with the whole of their winter stores; in fact, the weight of our hives has been decreasing ever since the hay was cut.' In conclusion the editor says, 'It is only reasonable to suppose that this state of affairs is more or less general, and, if so, very serious losses must be anticipated during the coming winter wherever the leave-alone system is still acted upon.'

INDIA.

Bee-keepers will be interested to know that, according to the results of recent inquiries made by the government of India, a large market for their produce appears to be open in our Eastern Empire. This, at any rate, is certain, that honey is everywhere in demand throughout the peninsula for domestic, medicinal, and sacrificial purposes, and that at present no attempt has been made by indigenous industry to meet it. India possesses an abundance of bees, and offers also a prodigious market for honey, but hitherto, owing to local causes, the industry has never been systematically developed. Whether it ever can be, except in purely European hands, is very doubtful, for the native of India has little taste for new enterprises. At present the honey-takers belong only to the lowest castes of the people, chiefly the poor jungle tribes, who literally pick a subsistence under the trees and off the rocks of the wildest parts of the interior of the country; and to enter deliberately upon a system of bee-rearing would seem to the conservative

Oriental like descending to a lower sphere of work to take the bread from the mouths of inferiors.—*Daily Telegraph.*

NORTH AMERICAN BEE-KEEPERS' ASSOCIATION.

The Convention of the above Association was held in Toronto, an account of which we extract from the *American Bee Journal* :—

'A great Industrial Exhibition lasting two weeks is now in progress, and the honey show is one of its departments. It is held in a building about 40×120, which is entirely devoted to this purpose, and is filled from end to end with the finest display of honey ever collected on this Continent. A little detail will give some idea of the scene. D. A. Jones, of Beeton, has, of course, the largest exhibit. At one end of the building he has a pyramid of cans, ranging from two ounces to five pounds in capacity, the whole forming a little mountain of honey, 41 feet 6 inches in length by 14 feet in breadth, and towering far above the heads of visitors. In the centre of the building a cone of smaller circumference, but rising to a greater height, is similarly constructed. Above this pyramid floats a variety of flags, and above all the porcelain globe of a powerful electric light spreads at night the brightness of noonday over the whole interior of the building. Great boxes of honey are piled against the wall, and over them, and on the floor, are eighty barrels in all of the luscious liquid. In all, Mr. Jones has about 50,000 pounds of honey in the building.

'Mr. Hall, of Woodstock, Ont., is the next largest exhibitor, and shows an imposing array of white combs rising far upwards, and varied every 2 feet by buttresses of extracted honey in gaily labelled cans, extending far along one side of the building. Mr. Hall has on display about 9000 pounds of honey in the comb, and about 13,000 extracted. Martin Emizh, of Holbrook, Oxford county, takes the palm for the nicest exhibit of comb honey. It is remarkably uniform and well filled out in the comb. Much admiration was expressed of this exhibit, which comprised about 4000 pounds. Mr. Rauer, of Cedar Grove; Mr. Goodyear, of Woodstock; G. B. Jones, of Brantford; W. C. Wells, of Philipstown, Ont.; Messrs. Granger and Duke, of Deer Park; and others contribute to make up the fine display which here presents itself to the eyes of the visitors.

'To many, a far more interesting and attractive object than the honey show was presented in the person of the Rev. L. L. Langstroth, who held a sort of extempore levee in the building, and went through a somewhat fatiguing ordeal in the way of shaking hands with the multitude of bee-keepers and others who were introduced to him by President Jones and Wm. F. Clarke. It became necessary after awhile to withdraw the venerable apiarist from the scene, that he might rest somewhat, and be in tune for the public meeting. Meantime, a general reunion of bee-keepers went on in and around the extensive exhibition building. Few seemed to feel much interest in the other departments to be found on the grounds, and there was ample proof of the correctness of a remark made by Mr. Langstroth, that of all classes he had met with none were so enthusiastic in the line of their calling as bee-keepers.

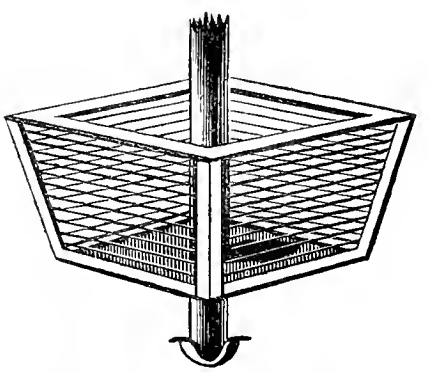
'The Convention was broken up into a multitude of little conventions, and all seemed to enjoy the opportunity of social intercourse presented. Attention was not confined to the interior of the building, but extended to a survey of the bee-hives, colonies of different races of bees, and the large variety of bee requisites to be found adjacent out-of-doors. To attempt a specification of all the numerous articles on exhibition would extend this report to a length that would be unsuitable, and, should anything be undesignedly omitted, the inventor or owner would feel himself slighted.'

Correspondence.

*** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

ZURICH EXHIBITION—EXTRACTORS.

Having a few hours to spare while passing through Zurich this summer, and knowing from a friend that there was a good exhibition of Swiss hives, bee appliances, &c., I made up my mind to pay it a visit, to see if they were at all ahead of us bee-keepers in England, and if there were any hints to be picked up. With the hives I found nothing out of the ordinary. The frames were square, and the arrangement for supering much the same. There was a tendency to ornamentation in the way of model cottages, with the entrance for the bees at the front door, &c. The white comb, shown without honey, struck me as having a decided pink tinge, quite different to ours. But what struck me as being an improvement on our appliances were the extractors. These were similar to ours in the tin vessel and gearing for rapid rotation, but the revolving portion, or honey-ejecting part, differed in one or two particulars, which I will mention. First, the framework was of wood, carefully planed. The upper part projected more forward than the middle and lower part. By this the power is strongest on the honey-bearing portion, and less on the middle and lower portion, rendering it less likely that the brood would be thrown out. The frames rested against strings fastened parallel instead of against an elaborate wire arrangement. It struck me as being a much cheaper and more effective form than that part of our home extractors. I forgot to mention that the



machine held four frames. I give a rough sketch of the revolving portion. The lower part of the pole worked in a pivot.—O. W., *Bickley, Kent.*

FUEL FOR SMOKERS.

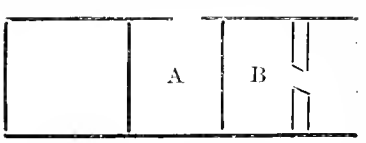
As the subject of the best fuel for smokers is under discussion, I should be glad to state the plan which I have adopted and found very successful. The suggestion which I propose may possibly prevent some disappointment to bee-keepers who have been unable to keep their smoker going, and just at a critical moment perhaps have looked for its help in vain. Having collected some old rags, the thicker the better, and some brown paper, I saturate them with a weak solution of saltpetre and water. After they are dried, I cut the pieces into strips about two or three inches wide. I then place a strip of rag upon a strip of brown paper, and roll them up loosely

to a size rather less than that of the barrel of the smoker, and tie round with thread. A quantity may be quickly made up, and are always ready when required. They easily kindle, and keep going a long time, and when one is nearly exhausted a fresh one inserted in the smoker will at once catch light. The lighted end should go first into the smoker, so that the blast may drive the fire forward.—Astley Roberts, *Crowley Green.*

[The above method is tempting, as by its use there will be no difficulty in preserving the fuel alight, provided the smoker be kept in an upright position. But in previous *Journals* we have considered it necessary to enter a caveat against the use of saltpetre or other chemicals, believing they have a deleterious effect on the brood, and tend to corrode the tin portion of the smoker. Touchwood is better. Break it into small pieces, dry in an oven and use. It will keep alight if the smoke has a means of egress. But a caution should at the same time be given as to the too frequent use of smoke. If too large a quantity be used, with the idea that the bees should be stupefied, there is little doubt that it will prove injurious to the bees, and in a greater degree to the brood. A 'little smoke' may be used with impunity.]

TWIN HIVE.

In the *Journal* for Aug. 15, 'Tyro' asked about making the entrances of this, one in front the other at the side. As I adopted this plan last autumn, and intend to make all new hives so, can you let me explain my method? My hive has the front entrance facing east, and side one south; is about 30 inches long, with east entrance in the middle in winter, whilst for summer it extends towards the north. In autumn, with a strong stock in A, I place a weak one in B, shutting in with a padded dummy, with a small passage through it. In spring I enlarge each stock till there is no more room for B, then moving the hive about a foot to the north, I transfer B to a ten-frame hive, which I place so that the entrance shall be where the old one was, but facing east. Their old entrance being closed up the bees soon settle to the new home, and having a couple of empty combs for extra room, and can be supered for comb honey if the weather be good; whilst the middle dummy of the long hive being removed, A, with a queen-excluder on each side of a ten-frame brood nest, can store in the rest of the hive for extracting. Some think that bees will not cluster at the back for warmth, but over the entrance; I found on manipulating last spring the fullest brood-combs were those next the dummy between the two stocks.—Ernest Harnett, *Sittingbourne.*



HUMBLE-BEES FOR MATAMATA.

In reply to Mr. F. Boyes' caution, I beg leave to say that the mode recommended by him—viz., to send humble-bees after they have hybernated—is that which has been adopted. Mr. Firth, through his agent, Mr. Hopkins, has sent my firm the order for one hundred nests, and suppose it is to this he refers. The late Mr. Frank Buckland tried to send out nests, but to no purpose. I suppose *the founder of a nest* is what Mr. Firth intends to imply.—Alfred Neighbour.

LIGURIANS *v.* BLACKS.

In offering a few remarks on the merits and demerits of the above varieties, I must say that I have been drawn out rather prematurely on Mr. Ditty's opinion of Ligurian bees. I had made up my mind to tarry until another season before I would venture to say much in print, at least for or against Ligurians. But, premature as I consider myself, Mr. Ditty has been much more premature, as his experience has only extended over *one year*, and that, too, from his own showing, has not at all been a fair one as to weather or bees being in first-class condition in the spring. I have had three years' experience of Ligurians, and with all, I think they are all our American and South of England friends claim for them—first-class breeders,—and, consequently, have plenty of 'hands' to gather honey when it is plenty, such as it is in America, Italy, Germany, &c., so that my convictions are that Ligurian bees don't suit capricious climates, such as is common in the north of Ireland and in Scotland. They are too breedy, and therefore concentrate all their energies on rearing brood, instead of, like the Blacks, only rearing a moderate lot of brood, and storing honey in greater quantities than what will only be sufficient to keep things going in the brood-chamber. But, in all fairness to the poor Ligurians, Mr. Ditty ought to have waited another season before writing them down as he has done, only on one point, which I will now notice.

Mr. Ditty says, If you want honey-gatherers keep Blacks, but if you want to sell swarms keep Ligurians. Dear me! They won't gather honey, and yet he would send them all over the country indiscriminately, and by such means destroy all interest in bee-keeping. For the majority of people are fonder of honey than they are of bees, and if they would get into a race with all bees, and no honey, what would be the upshot? fifty journals would not prove to them that bee-keeping was a profitable business. Perhaps Mr. Ditty did not mean it as his readers will understand it. I would say, Black bees for all capricious climates, for honey, and for selling too, and I am sure in good climates the Ligurians are all our many apiarians claim for them.—Paddy.

[We have received a letter from a correspondent, with the signature 'Blacks,' somewhat to the same effect as the above.]

RIPENING HONEY.

Could not honey be ripened by causing it to impinge upon a hot surface in the form of spray? Instead of any specially-constructed apparatus, I should take my Root's (or any other extractor) and surround it with an outer hot-water case. Into the revolving cage, two rectangular tin cases, about the size of a frame, open at the top, and about two inches wide, would be dropped, and held in position by a flange, one side of the case to be perforated with small holes, this side being placed outermost. Having filled these cases with honey, upon revolving the cage it will be thrown out in the form of spray, and striking the hot surface, and slowly running down, the watery matter will be evaporated; if necessary, the process may be repeated. I should prefer casing the extractor not only round the sides, but at the base as well, and by coating with felt, or some good non-conducting material, the water would retain its temperature for a considerable time.

The above simple arrangement, without in any way interfering with its legitimate use, will combine that of a honey-extractor and a honey-ripener in one compact piece of apparatus.—G. F., *Kingsbridge, Devon.*

[Our respected correspondent, whose initials will be recognised as those of a bee-keeper of many years' standing, informs us that in consequence of severe and protracted illness he has been obliged to bid farewell to his favourites, and to distribute his hives among his friends. We desire sincerely to sympathise with him under his present affliction, and venture to hope that while the 'lamp holds out to burn,' we may be favoured with further suggestions on bee matters similar to the above.]

CANADA BALSAMS.

With reference to Canada balsams in the letter in the *Journal* for September 15th, my humble opinion is, that it is one of the most useful plants that can be cultivated for bees, on account of the great quantity of blossom, and being a plant that will continue in bloom until the frosts cut it down, and one that is even accessible to bees in wet weather. It furnishes very large quantities of pollen, and, doubtless, a fair amount of honey. My bees have been working on it since the end of August, and I can at any hour of the day, especially early in the morning, see numbers of Italians, hybrids, and black bees upon it. It will grow anywhere, and is worth cultivating, apart from its value as a bee plant, as my plants, in spite of recent storms, look exceedingly nice. While I write this I can see from my window the bees working very hard on them; and during the last week I have noticed several wasps on them.—JOHN MARCH, *Brentford, Oct. 8.*

HIVE-BEES AND CANADA BALSAMS.

My experience as to hive-bees and Canada balsams coincides with that of your correspondent 'Selby-Hele,' in a recent number of the *B. B. J.*, except that I keep no Ligurians. The great six-foot high plants have been covered with white and pink blossoms, exhaling a peculiar but pleasant fragrance, and the humble-bees have been at them all day long; but, to my great vexation, my black bees have hardly visited them at all. It is possible that the superior attractions of the borage close by have prevailed, as that has always been covered with bees, and I only wish that its value as a forage-plant could be established, so that acres of it might be grown. There is a perfect plague of wasps here, and though the gardener has taken thirty nests, the hives are still beset. Yet very few queen-wasps were seen in the spring.—A HAMPSHIRE LADY.

CANADA BALSAMS.

The Rev. Selby-Hele asks for other people's experience of these flowers. I beg to say that I have watched a row of them for a long time, and have never yet found a hive-bee at work on them, though they are, as he says, frequented all day long by humble-bees. I beg to endorse his opinion, 'that those who recommend certain flowers for bees should have some experience before they lead people astray.' The snow-berry is an excellent shrub for bees.—F. BOYES, *Beverley.*

EXCHANGE (?) OF QUEENS.

I send you the following as being a matter of some interest:—

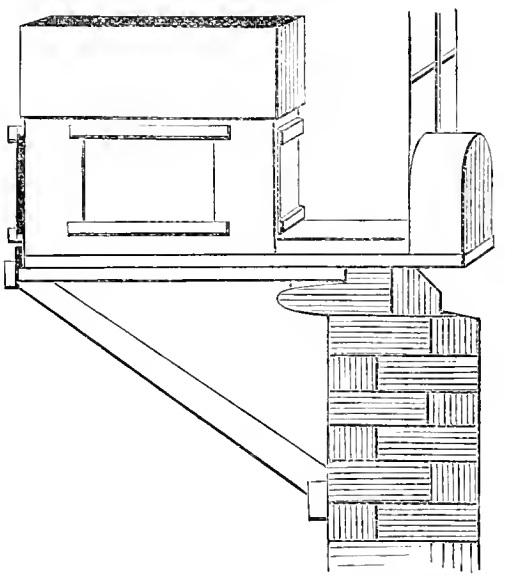
On June 17th I made an artificial swarm from a strong black stock, and on the 19th I introduced to the latter a fine Italian queen, in pipe-cover cage; in twenty-four hours she was released by the bees, and commenced laying at once. I saw this queen occasionally for the next *four or five weeks*, after which the hive was supered and left undisturbed—Italian bees being now numerous.

On the morning of the 24th July I found a black queen on the ground some five yards in front of the swarm to which I thought it must belong, as I had been looking over these combs the previous day, and supposed she must have fallen from one of them. I put her at the flight-hole, and she appeared to be well received by the workers who escorted her into the hive; at this time it did not even occur to me that it could possibly be other than the legitimate queen, as I then only had two hives. I left home a day or so afterwards, and on my return some weeks ago, was astonished to find the Italian bees almost extinct, and a black queen in the place of my fine imported one! I have never heard of a like instance, and can only suppose that queen-cells were started during the two days that the stock remained queenless (although I have never seen any); that they arrived at maturity; that the Italian queen was killed and another expelled, which was the one I found on the ground. The astonishing part of the matter is, that the Italian queen could have continued in the hive for a fortnight or more with another queen or queens, which must have been the case.—W., *Southampton.*

[Most likely a vagabond swarm, either from yours or a neighbour's black stock, forced its way into your hive and killed the Ligurian queen. The queen which you found was doubtless that of the hive to which you returned her.]

OBSERVATORY HIVES.

I don't know whether this rough sketch and description of a cheap observatory hive that I have lately made, and now have in use in my dressing-room, will be of any service to 'Ebor,' but if it is he is very welcome to it.



The total cost is under 5*s.*, the requisite materials being 15 feet of inch white deal planking, 9 inches wide, and 12 feet of $\frac{3}{8}$th inch ditto (all perfectly free from turpentine), $\frac{1}{2}$ lb. of white lead, 1 lb. of putty, and 4 pieces of glass $\frac{7}{7}$ inches × $3\frac{1}{2}$ inches.

The body of the hive consists of four pieces of one-inch deal screwed firmly together, the joints being white-leaded. The front, back, and sides, each have a glass-window in them, 7 inches × $3\frac{1}{2}$ inches, covered by a wooden shutter 9 inches × $4\frac{1}{2}$ inches, sliding-in projecting runners, which are made by screwing together two pieces of $\frac{3}{8}$-inch planking, the outer pieces being $\frac{1}{4}$-inch wider than the inner pieces.

The dimensions of front, back, and sides, are as follows:—

Front, $8\frac{1}{2}$ inches × 15 inches, with a doorway 6 inches × $\frac{3}{8}$ inch.

Back, $8\frac{1}{2}$ inches × 15 inches.

(The front and back both have a strip of zinc nailed on to their tops on the inside, projecting above them $\frac{1}{4}$ inch to prevent propolising.)

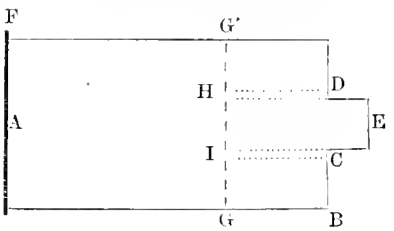
Sides, $8\frac{3}{4}$ inches × $16\frac{1}{4}$ inches.

When the body of the hive has been screwed together with four 2-inch screws at each corner, strips of wood one inch wide, and the same thickness as the top bars of the frames, should be tacked on to the tops of the sides to make the whole level when the frames are in.

Slats, $\frac{3}{8}$ inch thick and 6 inches wide, are then screwed on round the body of the hive, and projecting five inches above it. The doorway is $\frac{3}{8}$ inch high and six inches wide, and is regulated to any required distance by two strips sliding in a projecting runner similar to that described above.

The interior dimensions of this hive are 15 inches × $14\frac{1}{2}$ inches × $8\frac{3}{4}$ inches, which will take 10 standard bar-frames.

The bottom of the hive is shaped thus—



The distance from A to E is 2 ft. $4\frac{1}{2}$ inches. F is a slat 2 inches wide and $\frac{3}{8}$ inch thick nailed on to the bottom, and standing one inch above the level of it to screw the body of the hive on to for safety. The hive reaches as far as the dotted line GG'. At DC the hive bottom passes through a hole in the glass of the window, 6 inches wide and $1\frac{1}{2}$ inches high. DH and CI are two pieces of wood $1\frac{3}{4}$ inches high and one inch thick, which are screwed on to the bottom, and exactly fill the space between the sliding doorway and the glass of the window. Grooves are cut in these pieces DH and CI to receive a piece of glass which covers this passage, the dimensions of which are 6 inches wide and 8 inches long.

The bottom projects four inches beyond the glass of the window, and forms the alighting board, 4 inches deep and 6 inches wide, which is covered by a triumphal arch of zinc.

The whole hive is supported on a bracket made of one inch deal, which is attached to the window-sill by two screws, and has a prop of 2 inch × 1 inch wood beneath, as shown in the sketch.—J. O. Coussmaker, *Vicar of Westwood, near Coventry.*

MAKING SYRUP.

The contrarient recommendations given as to syrup-making are curious and perplexing. The results are also varied. The difficulty is in the crystallisation. In previous years (except last, when I had not to feed at all) there was, at times, a little trouble, but no particular attention could be given to discover the cause. This season I resolved to pay more attention to the matter. In this month's first Number, you say at p. 201, 'Use 5 lbs. of sugar to a quart of water, and boil hard for ten minutes.' At p. 195 Mr. Simmins tells us that he used 4 lbs. to a quart of water, and never boils after the sugar is well melted. He gets no trouble from crystallising: the question is 'Do you?' I began the other day with a loaf of Dutch, which answered fairly well. So did Demerara subsequently, though in each case there was a *little* solidification. I next tried 14 lbs. of French, but at first could get only one half the contents of my feeding-bottles taken. The rest was re-melted, and, as I afterwards learnt, without the addition of water, and the result was that I had a sugar-cake in each bottle, as soon as the stuff was cold. A third melting, with water added, is a complete success. In this case I find that the mixture was 'just brought to boil.' In all cases my proportion is 5 lbs. to the quart. Now my idea is this, that any sugar will remain in the syrup state with a certain amount of water, but that if you use less you are in danger of getting a more or less solid mass. I gather this from the trials mentioned. Is it a fair inference, and, if so, what will be the result to Mr. H. T. Male if he blows off the steam 'for at least ten minutes,' as you advise? I will ask him to be good enough to tell us.—C. R. S., *South Cornwall.*

[In sugar-refining it is found that an acid solution and a high temperature give a larger proportion of uncrystallizable sugar, and smaller proportion of crystals. Hence, the sugar is boiled in vacuo, and the solution kept neutral by lime. We want to reverse the products, and so we reverse the method and use an acid solution, and boil hard. When we approach saturation it is more difficult to prevent crystallization, so that a sample of sugar which answers well 4 lbs. to the quart fails at 7 lbs. to the quart. The advice given to Mr. Male in Number of 1st October was not given without experience in syrup-making.]

NON-SWARMING HIVE.

In February of last year I bought a stock of black bees in an Abbott's Standard Hive. They were strong and healthy, the hive was filled with comb, brood and drones were plentiful. Summer came on, and yet not a single swarm did I get from the hive. They went into winter-quarters with a good amount of store, candy was given about Christmas, and feeding was started early in the spring and continued into May, and although this summer has been a poor one for honey, I think swarms have been plentiful enough. In May I saw drones come from the hive, and expected a swarm every day. Cold weather and rain for the rest of the month disappointed me; and although in June I had swarms from the other hives, this one swarmed not. I have shifted them now in their own frames into a hive in which the frames run across the entrance; and as in this hive there is greater facility for giving them room, as they require it, I shall expect this stock to continue a non-swarming one.

Seeing the lately raised question of crown-boards *versus* quilts, brought to my mind a case. A man who keeps a great number of hives here came to look at my bees; on seeing the quilts he expressed surprise, said he couldn't see how they could keep bees warm in winter. The same man told me that one winter he lost more than half his stocks. Cases like this have great weight, and should be carefully considered.—Thomas Major, 69 *Guildhall Street, Folkestone.*

WORKER-BEE IN QUEEN-CELL.—QUEENLESS HIVE.

I send you by this post a queen-cell cut out of a hive on Friday, the 28th September. As you will see on examination, it contains a worker-bee evidently shut in, as Mr. Simmins states, by the cap falling back after the bees had entered to clear out the surplus food, and the soft condition of the wax was sufficient to hold the cap so tight that the worker could not back out, and, from the position in the cell, unable to turn round and push its way out. On opening the hive (which belongs to a lady) I immediately saw something was wrong, as there were several drones still about, and after examination things looked worse, for no queen could be found, but a few cells of drone-brood sealed over, and some in process of sealing, and only a few worker-bees; not a pound of bees altogether, though there were seven combs, all partly, and two very nearly, filled with honey and sealed. This seemed such a clear case of a fertile worker, the only safe thing to do was to carry away the hive and brush off all the bees from the combs and hive, and then put in two stocks driven from skeps (one from either side), and leave the fertile worker to her chance, hoping I had got rid of her. Query: Had the bees been waiting, hoping this cell would produce a queen after all, that they had not reduced it in the usual way?—C. Brown, *Bewdley, Worcestershire.*

LATE SWARMING.

On Friday, September 28, about 4 p.m., I went to take some condemned bees for a lady at Wolsingham. On my arrival I was informed that the hive I was to have taken had swarmed a fair average swarm, but that most of the bees had gone back. In the garden I found the remainder of the bees, about a pint, in a cluster on a raspberry-cane. I cut the top of the cane off, and shook them on to the alighting-board. Some fell to the ground, the queen amongst the rest. I put her in a cage and recommended that she should be returned to the hive as soon as they were a little settled (the lady had in the meantime decided not to take them), thinking there might be a young queen in the hive not mated.

In the same garden there was a late swarm, of not more than half-a-pint of bees, which had built three or four pieces of comb about the size of the hand; these I had to take. On turning the hive up, to the astonishment of the old lady, the bees were all gone, except about half-a-dozen robbers, which were too late to find any of the spoil.

'They were there last night,' said the good lady, 'for I gave them that piece of comb at the bottom of the hive to feed them.' I expect that the comb given to feed them had attracted the bees from the other hive, which had quite cleaned the weak hive out, and the bees had migrated with their friends the robbers to the other hive, where they were friendly received, as there were no signs of fighting; but as the accommodation would be limited, the stranger-queen would lead off a swarm of her own subjects and a lot of the friendly robbers, but most of the robbers would return to their old home. I should like to see the opinions of some apiculturists as to the facts of the case, and on my advice to return the queen.

A word as to the winter-covering of the hives (straw skeps) up here. They stand on a large stone, a piece of old sack, or old rags laid on the top of the hive, a turf with the grass side down on the top of that, and a stone on the top of all.—Icarus, *Weardale*.

STRAW-DUMMIES *v.* WOOD.

Seeing an article in your last number, 'Quilts *v.* Crown Boards,' perhaps the plan I am trying may commend itself to some of your readers. Instead of boards for dividers I use straw ones, made in the same way as straw-skeps, only straight, and made with string instead of briars, and sewn looser, with two splints run through them to keep them straight, and for the top the same without the splints, and where feeding is necessary, with hole in centre. They can be made any size and thickness, and cost next to nothing, and do away with all mess, as when using chaff. I don't know if any one else has tried anything like it. If any of your readers have done so I shall be obliged if they will give us the result of their experience.—A. Fitch, *Cople, Bedford*.

BEE-KEEPING IN THE ISLE OF MAN.

There are a considerable number of bee-keepers in the Isle of Man, principally cottagers, whose stocks respectively vary from one or two straw-skeps to about ten, which are treated in a primitive manner. There are, however, in the neighbourhood of Douglas several bee-keepers who have adopted the bar-frame, and one apiary there contains ten double hives filled with Ligurians.

Bee-flora and heather abound, and if the weather be propitious much honey should be stored. There is, however, little demand and a poor market for honey. If some energetic resident with leisure would visit the various bee-keepers and explain modern bee-keeping, much good might be done—a neglected industry opened up, much honey exported, and bee-shows held in conjunction with the Agricultural Shows, and an Association started. Bee-culture has not, as yet, advanced in the Isle of Man sufficiently to maintain an Association there.—G. Drinkwater, *Tynwald, Grove Park, Chiswick*.

STINGS—A SUGGESTION.

I have had a curious experience of the effect of a bee-sting. On Friday last, by request, I went to the Rectory of Bluntisham to save several lots of bees from the 'sulphur pit.' A few minutes before my arrival the gardener, while singling turnips in a garden, separated by a high wall from another, in which the bees were placed, was stung on the inner side of the right arm, between the wrist and the elbow. In less than five minutes his face was like a full moon, his lips and cheeks swelling very much. He and all who saw him thought it was 'all up' with him. I never saw a person in such a state before. The remedies recommended in the *Journal* were applied, but without their having the slightest effect. Although the swelling in the face gradually went down, Mr. Cooper suffered very much the next day; his arm was swelled so much that he was obliged to carry it in a sling. The *Journal* teems with remedies, but beginners in bee-keeping who have not the back *Journals* to look through are at a loss what remedies to adopt or recommend. The list I have made from back *Journals* is a very long one, hence a suggestion. If you can spare space would it not be well for a list of remedies which bee-masters have used, or known used with the best effect, to appear in each issue of the *Journal*? I am of opinion that if a bee-keeper be in good health a few stings will have very little effect on him. Being repeatedly stung may lessen the effect of after stings, but not if the blood be in an impure state. The bee-keeper does not, as a rule, require these remedies for his own use, but for application in case a friend or neighbour should get stung. I generally draw my hand across my clothes if the sting is left in, and then, having destroyed the scent with a little smoke, as recommended by Professor Cook, proceed with manipulations. To those who are afraid of after consequences I recommend the hollow end of a key being placed over the wound, and the venom to be forced out by slight pressure on the key, which is generally all that is required, and if not there I am obliged to stop, having seen every remedy fail.—C. N. White, *Somersham*.

[If our correspondent would take the trouble to make a selection from his list we would endeavour to find space for it in the *Journal*.—Ed.]

MOVING BEES.

I have read the article on 'Moving Bees' in a recent number. I have had the management of twenty-two hives, and occasional superintendence of about thirty more, nineteen of them bar-frame. Having occasion to move an apiary of nine skeps about seventy yards, I transferred and united two in each bar-frame hive, and moved at once, late in June. I have had no trouble with bees coming to the old site. In supering I find that taking off the roof of super, and laying a slate or two on the top of quilt on a warm, sunny day, the heat drawn from the sun by the slate draws up the bees without, in nine cases out of ten, any further trouble. I have had also to move seven skeps of bees a distance of nine miles in a cart mouth upwards. I found in every case one or more combs fallen; while on another occasion, taking a weak old swarm with five combs about half built mouth downwards (in a cart) about five miles, not a single comb fell. As regards honey we have done very fair, but have left hives well stocked, preferring honey to anything else for bees to winter on. My bees have not in two instances killed the drones yet. I cut out a queen-cell on Aug. 31, rather late I think.—A. Fitch, *Cople, near Bedford, Sept. 3*.

ANTS AND BEES.

One of my bee-hives was infested with ants. I traced the pathway leading from the ants' nest to the hive. I immediately procured my paraffin can, and used its contents liberally around the hive and the ants' pathway. The result is that I have not seen an ant since. When extracting, feeding, &c., I always pour a little paraffin on the ground in front of hive, which takes away the scent of the sweets. If I see the least tendency towards robbing, I pour a few drops of above on each side of the alighting-board, which soon puts a stop to all marauding expeditions. Turpentine or petroleum will answer the purpose.—Lydia Brown, *Whaplode*.

JUDGES AND SHOWS.

One hears a great many complaints of the judging at shows. Are there not some ways in which we might improve our judging, for I question whether it is altogether satisfactory? Let me state at once that I have never shown, so I am not a *disappointed exhibitor*.

Could we not have a *list of points* to guide our judges as they have at shows, especially for the honey and wax?

What is good honey, should it be dark or light in colour, should it be thick or thin? and then with regard to honey in the comb, is the regularity of the comb, and the whiteness of the capping, the *chief or only* quality needed to obtain a prize? Is the taste of any value at all in judging honey? If so, how is it that the judges frequently give prizes to honey that they have not tasted? If you look at section honey, you will continually see that the prize lots have not even been tasted.

And then with wax, may not a great deal of the quality of wax be discovered by breaking the cakes, and seeing the *colour* of the fractured wax? Might we not with advantage have some rules as to the value of colour, hardness, fracture, &c., of wax? could we have some test for the amount of honey, pollen, and propolis that adulterate it?

Then, again, I frequently hear complaints that the prizes at shows go almost entirely to the large hive-makers. People tell me, when asked to join the County Associations, that their money will be used to give prizes to those men who are large hive-makers, of course I do not mean to say that this is quite true; but it does make one a little jealous to look through the list of prizes at all the shows and see them chiefly won by Neighbour, Abbott, Baldwin, and Blow. Of course the prizes must go to the best; but people complain that they have not much chance against these large exhibitors, and that they get prizes year after year for *practically* the same hives. I see that there are difficulties in the way of any alteration, and I know that it will be said that without these exhibitors the number of exhibits would be very small, perhaps it would at first, but is it not partly caused by probability (almost certainty) that most of the prizes will be carried off by these four? I notice in a recent *Journal* that twenty-seven prizes were won by these four. I don't wish it to be thought that this is any hardship to me, I do not suppose that I shall ever exhibit a *hive*, but I write as the mouth-piece of those who have complained to me.

Then with regard to the value of prizes. Do we not break the shows up into too many classes? At the Kent Show we had 27*l.* divided between twenty-two classes; only just over 23*s.* per class. Of these classes four were for sections (besides those for cottagers where there were two more) only differing in size and number: namely, a class for twenty-four 2-lb. sections, twenty-four 1-lb., twelve 1-lb., and 6 1-lb. Would there not be more exhibitors if the classes were fewer and the prizes more valuable.

This seems rather a letter of *grumbles*, but my object is to get a free and full discussion of what seems to me important questions. If the majority think these things are best as they are, by all means let them remain so; but if we can alter them for the better, let us discuss them amicably together, and see how we can improve them. I shall be very sorry if any of the exhibitors or judges take offence at these remarks, they are only meant to be for the good of our pet hobby.—H. Aldwin Soames, *Margate*.

A SUGGESTION.

If you think the following suggestion worth notice kindly insert it, as I have never heard or read of it, and it may be of use now stocks are being prepared for winter:—viz. To draw the frames alternately to the sides of hive, or if you draw the two first frames, you will have an enclosed chamber round cluster with exception of quarter inch space at end of front frame. My hives are on the Irish principle, or Combination: the frames run across, so it is easily done.—A. J. N., *Pewsey*.

INCREDIBLE, AND YET TRUE.

(*Translated from the Bienen Zeitung by Mr. Fred. Zehetmayer.*)

When, on the 20th July last, about 3 o'clock in the afternoon, I was near one of my bee-houses, I observed on a bare garden plot a drone being dragged along by a worker-bee. The curious writhings and the efforts of the bee attracted my attention, and on drawing nearer I observed that the drone was attached to the bee. I could scarcely believe my eyes, when, taking the little couple on my hand, I convinced myself of the existence of an act of mating. As a follower of, and believer in Dr. Dzierzon and his theory, I took such an act to be impossible. Having some spirit of wine in one of my bee-houses close by, I put the two into it, in order to be able to make sure of the actual state of things at my leisure. The bee was vigorous, and I had to immerse her several times in the liquid before she was drowned. The drone was dead when I took them on my hand. Both the worker as well as the drone belonged to the north European (black) race, which forms with Ligurians and Carniolians, the principal part of my apiary. The mated bee was, judging by her grey coating of hair, a young one, at the age at which they usually take their first flight. She made every exertion to separate herself from the dead drone. This latter was of middling size.

I thought at first that the bee might be a small queen, which, according to Dr. Dzierzon's theory, it could only be, but I could see at first glance that she had not the resemblance to such, for the slender appearance, peculiar even to small queens, was totally absent from her. I took the pair from the spirit, put them under a magnifying glass, and saw that it was actually a worker-bee, as the pollen baskets and the brush were perfectly developed; whilst a queen, however small, would never have these peculiarities. The mating of this worker-bee has, according to my examination and conviction, actually taken place; a fact which will be established by a forthcoming anatomical examination.

The two bees are quite uninjured, although I have pulled the bee pretty strongly, in order to investigate the fact. They are now kept in a bottle of spirits of wine properly closed, and will, I hope, remain well preserved until the dissection takes place.

I am ready to hand this pair of bees to a reliable and competent anatomist for examination, and to establish the truth, so that the discovery may not be lost to science; and I beg of you to let me know whom I had best address myself for this purpose.

I believe that this case is unique, and I wish therefore to take every precaution in the examination and establishing of the fact, in order to be able to confute positively any doubt or counter-suggestion. In connexion

with this discovery I have some views, which I intend to publish presently, together with some observations I have made during my thirty-two years' practice.—ANTON KREMER, *School Director and Teacher of Apiculture, Schroda Posen (Prussia).*

In a note to the above lettter, the editor of the *Bienen Zeitung* says that Mr. Kremer personally handed the two bees to Pastor Schönfeld (known also to the readers of the *B. B. J.* by translation of his most interesting anatomical treatise 'On the Mouth of the Stomach in the Bee'), and that he, Pastor Schönfeld, has since written the following:

'The bee in question, mated with the drone, is most positively no small queen, but a real worker-bee.'

SUGAR AND SYRUP.

I have no intention or desire to enter the recent controversy on Sugar and Syrup, but I am one of the old bee-keepers referred to, and although I have had considerable experience in feeding, I was not aware that if '30 lbs. of sugar was made into syrup'—say 50 lbs. of syrup—that 30 lbs. weight of this would be lost by the bees in process of depositing in comb and sealing over, and therefore I desire to direct attention to this statement simply in the interest of truth. We usually make 30 lbs. of sugar into 60 lbs. of syrup, and then considerable evaporation necessarily follows, but to lose 30 lbs. out of 50 lbs., with the comb already made, is new to me.—THOS. F. WARD, *Highgate.*

WINTERING OF BEES.

In reply to 'Woodleigh's' Query, how I winter my bees, I endeavour to carry out the following rules for wintering, the preparation for which is one of the most important operations in an apiary, and, doubtless, one of the reasons for severe losses in winter is that we wait too long before commencing the preparation for it, in our anxiety to obtain the largest possible yield of honey drawn from the brood-chamber, with the extractor up to the last moment of feeding up safely.

If cold weather sets in by the middle of August, commence gentle feeding, and at the beginning of October feed up rapidly to required strength, unite weak stocks together, and before November set in extract all loose honey, cut winter passages in combs, crowd the bees close, nail unbleached calico under a super-crate or bottomless box, placing it over frames (having previously placed an extra piece of calico over frames to prevent the bees gnawing through to the chaff with which the crate is filled), and then fill the hive with wheat-chaff, which I prefer, having separated the dust from it. It collects moisture, prevents mould, causes upward ventilation, and gentle evaporation from the hive. Put on a sun-shade.* Do not forget to occasionally hook out dead bees. By all means have double-walled hives, it is false economy to have single ones, which keep the bees at an even temperature both in winter and in summer. I prefer mine, two feet six inches long, hold nineteen frames and a dummy, and have an extra entrance behind, but on the east sides some of which contain double stocks to be united when the honey glut comes, after taking a queen and nuclei out.

When the Committee of the B. B. K. A. induce the railway authorities to grant cheap rates and facilities for the removal of stocks of bees to the heather and other districts, much expense and trouble will be saved in autumn feeding, and a second harvest obtained; but I must again remind the Committee that there are now no classified rates for it. The months of July and August in this district have usually been cold, hence the corn on the heaths and uplands in Northamptonshire has ripened a week later than the Fens. The reverse is usually the case in a general season. We need not wonder at the large quantity of blossom not yielding any honey during the cold nights and chill days. Every bee-keeper should buy T. W. Cowan, Esq.'s book on *Wintering Bees*, price 2*d.*, and not purchase a bar-frame hive until they have resolved to have the number of frames regulated in it according to the size of stock and season of the year.—ROBERT THORPE, *Evedon, Sept. 23rd.*

* Sun shade made thus about 3 in. long.

CUTTING QUEEN CELLS.

In reply to 'J. B.'s' question, whether I cut away the queen-cells. No. I have rather learnt by experience that it is a dangerous proceeding. It has not unfrequently happened that having cut away all the queen-cells from a hive some accident has befallen the reigning queen, and the hive has been left queenless, which would, at least, retard the storing honey, if not altogether stop it. Of course another queen can be introduced if they do not raise one for themselves, but in either case valuable time is lost. As far as my experience goes, bees not only prefer but will have their own way; still as a rule if left undisturbed with plenty of room to store honey they will rather than swarm. I have now a bar-frame hive which has for the last three years worked most perseveringly in supers without once swarming; nor have I disturbed it by making artificial swarms from it. One hive this spring I disturbed by changing a super after the bees had begun to work, and they had their revenge by never entering the new super, but threw off a swarm and cast. I might add that I generally put on my supers in April well wrapped up in cotton wool.—ARTHUR B. LIPSCOMB, *St. Albans.*

VENTILATION OF HIVES.

In a late number of *B. B. Journal* Mr. Hewitt, in his answer to the Editor of the *Swedish Bee Journal*, says, in speaking of hives by our best apiarians, these makers forget that bees do not ventilate their domicile in winter. Now I ask, Do hives require ventilating in the winter? The bees say, No, distinctly and positively; yet man is continually trying to enforce on them unnatural conditions. His prolific brain is ever and anon inventing some new dodge to give his bees plenty of what he considers they require, viz. fresh air; while the instinct and labour of his bees are directed to nullify his efforts on their behalf, by propolising every crevice and crack they can find in the roof, sides, and bottom of their home, as long as they can get abroad to gather or collect propolis. But come the autumn man has it all his own way—the poor insects are at his mercy; they cannot roam hill, valley, or dell in quest of the needful propolis to fill the holes in the piece of perforated zinc he has placed exactly above their cosy nest, causing a draught that makes them shiver; neither can they remove to a remote corner of the hive in quest of more comfortable quarters out of the draught, because their considerate master has confined them in between two boards, leaving no room for them to move either to the left or right, back or front; here they are and here they must remain, and lick their candy in an atmosphere little above zero in a contracted place, analogous to living in a front hall with a square or two of glass broken in the skylight at the top of first or second flight of stairs. How would the bee-master like to pass the winter in such a place with artificial food?

Now, I maintain that bees require no ventilation other than that they receive from the entrance of the hive at any time or under any normal circumstances. I consider the fanners at the entrances during warm weather are for reducing the temperature of the hive, and not for the purpose of ventilating the hive. I quite concede

that it is only by cooler air taking the place of warmer that the temperature of a room or hive can be reduced: but I look on it, that the primary object of the fanners is to keep the hive *cool*, and not for a supply of *fresh air*. I think I have had ample proof of that these last two years. I have exhibited at South Kensington and Knightsbridge large glasses of honey. Now, those glasses were worked on Woodbury hives on crown-boards: the said crown-boards three-quarters of an inch thick, with opening corresponding to opening in thin board gummed to bottom of glasses. The crown-boards were gummed to hive by strips of paper, and the glass supers gummed to the crown-boards, and no hole or any ventilator to any part of the hives except the mouth or entrance; and yet I never saw a bee in any one of them *fainting* for want of ventilation, or a dead bee in either of the glasses during the time the bees were filling them, and in working the sections I follow the same plan. I have sent results of one hive worked on this plan; but please don't all of you pack up your bees and start for the 'World's End,' thinking I have a Bees' Paradise. Far from that, I assure you: as many of my cottage neighbours have to take several stocks to get a ¼-cwt. of honey this season.

Now if bees work well under the above conditions during the summer, and winter well under the following conditions, I think it is as good as proved that if my ideas are not exactly correct, they are tending in that direction. Now in packing my bees for the winter, I leave all the frames in the hive; screw the crown-board down and gum round with strips of paper, as I know the bees cannot propolise the cracks, if any, at this time of year; lay on a piece of glass over the opening (the openings are 12 ins. by 4 ins.), and gum it down; lay a piece of carpet on glass, and heap up the chaff; and then on top of all a piece of canvas or carpet, and there they are till the end of February.—WOODLEIGH.

A BEE-KEEPER'S BANK HOLIDAY.

Every year I go through part of the north of Surrey driving bees for cottagers, and generally devote the first Monday in August to calling upon them, finding out fresh bee-keepers and arranging for the driving. On Monday, August 6th, accordingly I started on my accustomed journey. The first call I made was fifteen miles from home. Mrs. B. wintered two stocks, and now has five, three of which she will take, strong and heavy; plenty of clover-honey coming in, so will not have them taken until last week in August. Seeing a little boy with an eye closely resembling one which I remembered seeing a long time ago reflected from a looking-glass (being closed up), I asked him what was the matter? 'Bee sting.' 'Does your mother keep bees?' 'Noa; they be in the wall.' Following him, I found the bees in the wall of the cottage. There was a hole about 10 feet from the ground, with bees going in and out, and a large cluster on the wall. They have been there three years; never swarmed, but swarms have joined them. On the promise of all the honey to the cottager, and all the rest of the spoil to me, I am to take them when down again last week in August. I found in most cases my fame had preceded me. 'Are you the gentleman that took Mrs. So-and-So's bees last year?' was the usual question asked.

In one case, however, I found not fame but blame. I called upon a tradesman, who, two years ago had about thirty hives, of which I and a friend drove six or eight. He was out on Monday, but an old lady, in reply to my question, How are the bees? said 'Oh! we have had no luck with them since two years ago two gentlemen came down from London, and took them alive instead of putting them down, as we always did.' On going into the garden I was not surprised at the want of 'luck,' for a more neglected state of things I never saw. The hives were smothered in rank weeds, and a neglected vine all over them, the skeps half rotten, and, no doubt, a prey to moth. I did not attempt to argue the matter with the old lady, nor did I say that I was one of the culprits (?) I hope to call and see the bee-owner when I am down there again, and try to put things in a little better form for him.

At a public-house near here the landlord keeps bees, I called upon him, and after some difficulty got the promise to be allowed to drive them. The bee-man of the village who is employed to take swarms and honey (and hives) happened to come in while I was there, and hearing of my proposal was arguing the impossibility of my doing it with his friends at the bar. He took one of my party (not a bee-keeper) on one side, and said, 'He's a-going to chloroform them bees, aint he?' I proposed to the landlord to then and there drive one stock, but he would not allow me, as he thought honey was coming in, and would rather wait a few weeks. I then proposed to the bee-man that he and I should each examine a stock by turning it up. Costume to be, no hats or coats, and shirt-sleeves rolled up; but this the bold bee-man would not have at any price. Another bee-keeper being from home, I went into his garden, where I found three skeps completely covered with bees outside, idling for want of room to store the clover honey, the only 'supers' being cabbage-leaves and old guano-bags. My next call was upon a woman who had wintered two stocks, which had increased to nine; she will take seven, leaving the two stocks.

Here is the secret of cottagers' success: they always take the swarms and leave the stocks, consequently have always young queens, although I found about thirty stocks to drive, beside the lot in the wall. Two days' hard work. I find that with getting the things out of the trap and packing again for the move to the next place the average time is half an hour a-stock. This is my experience of eight years on the same ground. I take with me several lobster-boxes with a partition across the middle and canvas tacked along it, leaving sufficient to cover both of the boxes thus formed. After driving two stocks I bump them into one skep and pour the united bees into one side of a box, put the canvas over and fasten down by laths nailed round, so that each lobster-box contains four lots. I do not trouble to look for queens, but I keep casts separate, marking the box, because the queens are young. When I get the bees home I find the old queen and unite the cast and queen. I put the boxes on their sides in the trap so that the bees get plenty of air; if the canvas is upwards they cluster on it, and no air gets in and they are suffocated. Very strong lots require a box to themselves. I take plenty of skeps, and where I can, I leave the driven bees on the stand until the evening; but I can seldom ensure going over the same ground on my way home, so I am forced to bring most away as I take them, leaving the flying bees to their fate.—F. L.

HONEY MARKET.

The proposals of Mr. Stewart anent the 'Honey Market' I considered very satisfactory and encouraging to bee-keepers, and the prices he mentions very fair and remunerative to producers; and I would suggest that the British Bee-keepers' Association have a registered 'Trade Mark' affixed indelibly on each section or super of honey that is sold to the public by them, and that their 'Trade Mark' be blown in each bottle as a guarantee to the public that what they are buying is genuine honey; and as regards quantity, I should think some large family jars or bottles made to hold six or seven pounds of honey would be saleable in some parts for family use (that is the size I find sells best in the country). And now as to the different colours and flavours of honey from the various localities: is it the intention of the Association to give one fixed price to

each member who sends a consignment of honey, irrespective of the colour, flavour, or quality, provided it is a genuine article? or are the prices mentioned by Mr. Stewart the minimum prices, and a consignment of very fine honey to command a higher price? This point ought to be definitely settled before the dépôt is opened, so that each member may know what price he will receive for his honey.

Then as to the colours of different samples; I should think that the best and fairest way will be to put the different colours into one large vessel and mix up altogether, and draw off one quality from the valve, or it is very probable the Association will get a lot of honey on hand that will not sell, and one member's honey, that is dark in colour, will remain on the shelves, while another's, that is bright and golden, will soon be sold.

In consigning a quantity of section-honey to the dépôt, must those sections travel in a specially-constructed case, or may be sent in an ordinary case, so that it reaches the dépôt in good condition?

What kind of vessels would Mr. Stewart recommend for the transmission of run or extracted honey to the dépôt? I should think some tinned-iron cylinders, with a tight-fitting cover and a handle on each side for our friends the railway porters to lift the vessel with, would be durable and unbreakable. Can any one give estimate of the price, say of size to hold 1 cwt?—W. Woodley.

THE MOUTH OF THE STOMACH IN THE BEE.

(*Continued from page* 180.)

Let us make this clear and intelligible to ourselves. When a swarm comes off, it is well known that every one taking part in the merry removal takes with her as a dowry for the new household as much honey in her honey-bag as it will hold. The new dwelling is desolate and unfurnished; there are neither little barrels of honey nor yet cradles for the children. Building material must, therefore, be hastily provided, *i.e.* wax must be produced. But wax preparation requires, as we know, a great deal of nutritive material, for it is an over-production of the chyle-stomach, a deposit of fat. Therefore the bee, if she wants to produce wax, must appropriate much more honey and pollen than is necessary for her own nutrition. What makes it now possible for a bee, when as a member of a swarm she is obliged suddenly to produce a quantity of wax, to bring about the supply of nutritive material far exceeding her feeling of hunger, or what is needed for her own nutrition? Is it not without doubt that the power is innate within her to consume with the mouth of her stomach voluntarily, and, according to her requirements, just as much nutritive material as her chyle-stomach can manage. Or when unfavourable weather, immediately or soon after the act of swarming, prevents all flight after fresh food, what makes it possible for her to limit the production of wax and comb, that is, to economise the dowry she has brought with her, and to store it up for the satisfaction of her own food-requirements? Is it not obviously, because a voluntary control over the contents of her honey-stomach must be given to her, and that this is only possible through the mouth of her stomach, whose action she can regulate just as well as every animal can its external mouth? That is certainly so, because wax is never an involuntary product of the body of the bee. The bee is only enabled by the presence of her stomach-mouth and her free control of it to produce wax when she needs it, and in the quantity she requires, and it is only its presence which enables her to fulfil all the other acts and duties of life devolving upon her as a member of the hive for the preservation of the commonwealth. The stomach is the regulator of all the manifestations of life, but its organ is the stomach-mouth. There needs no proof that a valve working mechanically would not be of the least use to the bee for the necessary regulation of the supply of food. A valve works to-day as it does to-morrow and every day, and it acts all the better the more equable and regular its course is.

This arrangement, by means of which the bee has the regulation of the supply of food in her own power, is indispensable for her as a member of the hive engaged in building, nursing, collecting, or holiday-keeping, and at the same time proves itself equally beneficent and advantageous for her nourishment and preservation as an individual insect. Of course, as long as the temperature in which the bee lives is so high that she can enjoy her full life, an external mouth and a simple alimentary canal would just as well suffice for her as for every other animal. But the bee is to be able to outlive even the severest winter—and for this ungenial season she finds in the stomach-mouth, that lies in her store-room, an essential auxiliary in defying the cold, not to say the only sheet-anchor for her preservation. We know that in very cold weather the bees must consume more carbohydrates, that is, must use up more honey to produce the necessary heat, and to preserve the heat produced they must more closely contract their winter nest. If, now, this winter nest is a normal one (as it must be where there is to be a good wintering, and as it is in every strong stock where human folly has not intruded a disturbing hand), it consists of a sufficient space of empty combs, over which or on which is found closely adjoining the requisite honey needed for the winter, and at the sides in all cases a further supply of honey-combs and pollen-combs. If a stock were obliged to winter on nothing but full honey-combs, it would certainly not come through alive if the winter brought with it anything like continuous frost. If a stock occupies a normal winter-nest, the greater part of it is on empty comb, and there is found above on honey-comb only a small fraction protected here from the chilling effect of the honey by the ascending heat of the stock. So long as the temperature does not fall very much, a minimum of food suffices to maintain the considerably lowered vitality of the bee; and this minimum may be obtained without great strain. But now let the dreaded frost set in, an icy wind penetrates even the thickest wall of the hive, more closely does the colony draw its coat, that is itself, about its freezing members, the passages fill up, body to body, the stock crowds together, and whoever can, as Klaus junior says, creeps into a cell. Fire up! is now the watchword; Honey this way! is the war-cry. But whence is it to come quickly and in increased quantity? Is the stock to mutiny, to leave the warm passages and cells and rush upstairs to the dishes of honey ready filled? No one will doubt that the attempt would cost the life of thousands. Or are the few hundreds that are at the top by the fountain of life to provide the great mass of the population with what is necessary? They do this certainly according to their ability; drop after drop is handed down to their beseeching and thronging sisters. But what is that among so many? What is to become of the last? How is the requirement to be satisfied in this way if the continuous and perhaps increasing frost requires ever larger portions, ever a more frequently repeated supply? Will not thousands be obliged to chill from want of food? No; the wise Creator has providentially helped in the matter. Has not the bee her store-room with her in her body, and her mouth in the middle of it in the full cup? The first attack of frost is therefore provided for: there is supply at hand. The further necessary supply will also be made possible. We know that, according to the observations of Von Hruschka, the stock in its winter-nest is in the act of continual slow motion and rotation. Bees which to-day form the most outside periphery are perhaps to-morrow in the warm centre; those which hung at the bottom travel toward the top, stepping over body after body, slowly but steadily following the sure impulse and

drawing of instinct. Now they are at the honey-spring; with deep draughts the bee sucks her honey-bag full. That gives provision for days, she does not need to come again soon; humming gently she steps down, making room for others, and soon a quiet little spot is found within the protecting cluster where she crouches down and gets warm. Now blow, icy Boreas; the little bee is in no distress; she is as comfortable in her cell as you are, my dear reader, when in the cold winter you are sitting with your merry children round the stove, and while the stormy wind is raging outside you are glad of the peace and happiness you are enjoying within.

There still remains to be discussed the relation of the mouth of the stomach to the supply of brood-food.

In finishing the part of my paper that describes the function of the stomach-mouth, I mentioned that we have still to discuss the important relation in which this organ stands to the supply of brood-food. For this purpose we must return again to one part of its anatomical structure. It has been already mentioned that the four different membranes of this organ pass over into the corresponding layers of membrane of the chyle-stomach; one need hardly say that from the muscular layer the ring-like muscles are excepted and that only a few muscles running lengthwise can be continued into the chyle-stomach on account of the relatively thin neck formed by the connexion between honey-stomach and chyle-stomach. With regard to the origin of brood-food, it is the three other membranes of the organ that interest us: the inner membrane which in its upper part the lips I have called the framework, the mucous or cellular membrane, and the outer membrane, or propria. Before these membranes amalgamate with the corresponding layers of membrane of the chyle-stomach, they are prolonged in the form of a sack for about a millimeter into the cavity of the stomach, then turn upwards and backwards, and here finally pass over into the membrane of the chyle-stomach, so that they represent a sack-like inversion of the neck of the stomach-mouth passing through a round opening into the stomach and floating free in the stomach. This peculiar prolongation of the neck into the stomach had entirely escaped me, in my first investigations of the organ, because I had never extended my researches into the interior of the chyle-stomach, but had always thoughtlessly cut off the neck at its entrance into the chyle-stomach. After the first part of my present paper on the stomach-mouth had been in the editor's hands since Feb. 20th, and I was setting about writing this third part, there came into my hands most opportunely a dissertation on the origin of brood-food and on the salivary glands of the bee: this article was written by Schiemenz at the instigation and under the direction of Professor Leuckart. From it I saw that the prolongation was already known to the French investigator, Léon Dufour, and had been accurately described by him.

Schiemenz gives a comprehensive description of the salivary glands, among which he also reckons the Wolffian glands of the olfactory mucous membrane; but he only adduces one reason for the derivation of brood-food from the salivary glands: of course as a pupil of Leuckart's he assumes this derivation. The one reason given against my view that brood-food is derived from the chyle-stomach is, that the sack-like prolongation of the neck of the stomach-mouth, as a membranous valve of the chyle-stomach, absolutely prevents every passage of its contents into the honey-stomach. I must necessarily then discuss the relation of the stomach-mouth to the supply of brood food more thoroughly than was my intention originally.

There is no doubt that the presence of a sack-like prolongation of the neck of the stomach-mouth into the cavity of the chyle-intestine has for its immediate purpose the prevention under ordinary conditions of a passage of the contents of the stomach into the honey-stomach; and there is no doubt that this purpose in view of the regular peristaltic movements of the stomach is attained most completely. But if we look a little more closely at the peculiar structure of this valvular arrangement, it will be immediately obvious to an unprejudiced eye that this arrangement cannot possibly have for its purpose the prevention of the passage of the contents of the stomach under all circumstances. For if this were the case, if the contents of the intestine could never under any circumstances be ejected into the honey-stomach, then a simple prolongation of the neck of the chyle-intestine, after the neck upon its entrance into the chyle-intestine had been amalgamated with the intestine, would just as perfectly have attained the desired end. Or, still more simply, there might have been a crescent-shaped membranous valve similar to those we find between the different chambers of the bee's dorsal vessel which acts as heart. If this were so there is no doubt at all that such an arrangement would have been made, for nature always uses the simplest means, of which we have sufficient evidence in the innumerable valves in the most diverse vessels of living organisms. But how is the prolongation constructed? I have already mentioned that it shows an inversion of the neck of the stomach-mouth. Let us try to make for ourselves a distinct picture of it. Let us suppose the finger of a black kid glove cut off is the neck of the mouth of the stomach, and the inner white surface is the inner membrane, or intima, of the neck, and the black surface is the outer membrane, or propria. If we now invert the lower half of the finger so that the inner white surface comes outside, and put a ring over the tip of the finger so far down that it reaches the beginning of the inversion, we have a faithful representation of the whole of the neck of the stomach-mouth. This simple glove-finger above the ring is the neck so far as it forms the connexion between honey-stomach and chyle-stomach; the duplicature below the ring is the prolongation extending into the chyle-stomach, and the ring represents the chyle-intestine's ring-like opening, which is found between the neck and the chyle-intestine. We see in the finger that the black surfaces of the skin lie one upon another as far as it is inverted, and that therefore in the inversion of the neck propria comes to lie upon propria. In order that these two membranes may not mutually coalesce and combine with one another, which would make impossible an eversion that might be necessary in any given case, very delicate fibrous tissue is imbedded between them.

The idea that this fibrous tissue is there for the purpose of making an eversion impossible, and that the duplicature is only made to give greater solidity to the prolongation, is signally refuted by experiments which may be made to bring about an eversion artificially. If we lay the bee's entire intestinal canal on a glass, under the microscope, fixing the chyle-intestine with the cover glass, and carefully draw the honey-stomach a little forwards, we may distinctly see how an eversion of the inverted prolongation regularly and easily takes place. If we now push forward the contents of the stomach by a gentle pressure on the cover glass they enter immediately into the everted neck and are poured out in a thin jet through the stomach-mouth into the honey-stomach. Scarcely one trial in ten will fail with a little precaution. We must only take care not to press the chyle-intestine too hard, and avoid twisting the neck. These experiments prove distinctly that the fibrous tissue does not prevent eversion; for the membranes are seen to be entirely uninjured, and at the same time so firm and capable of extension, that we may much sooner burst the chyle-intestine by too strong pressure than the neck; we may also convince ourselves by these experiments that the gullet of the neck is by no means so narrow as one might suppose. I have seen after feeding with pollen that at the narrowest part of the neck near the stomach-mouth 5 to 6 grains of pollen can conveniently lie in a row across it.

(To be continued.)

Echoes from the Hives.

Evedon, Sleaford.—I have taken this year over sixty stocks of condemned bees, so that I have now about ninety stocks in apiaries. I have taken over 260 stocks of condemned bees during the last three years. Knowing all the bee-keepers for some miles round, I arrange a series of journeys in different directions and secure bees to keep my stocks at home strong.—ROBT. THORPE.

Wilts, Pewsey.—The honey-harvest about here has been very poor; most of mine was made before the end of June, since then they have been emptying the outside frames and sections that were left on. I am afraid the cottagers will again suffer, as most of their hives have swarmed; and out of twenty-five driven stocks eighteen, I should think, of swarms and casts, the average would be half pound, and the others were very light.—A. J. N.

Devonshire.—During the month of September there has been little to report of in this county, the honey season is over, the weather on the whole has been unpropitious, there were a few fine days, but we had twenty-one wet; the total amount of rainfall for the month was 6·46 inches, the greatest fall being on the 1st, when 1·36 cents were caught; the corresponding month in last year we had nineteen wet days with a total of 4·31 inches. On the 27th I hived for a friend a small starvation swarm, being the smallest I had ever seen. One meets with queer remarks occasionally, showing the ignorance that exists. During the summer I was describing to a lady how to manage a bar-frame hive; I asked her if she had any comb foundation, 'No,' was the reply, 'but there is plenty of old comb in the house,' and turning to her gardener instructed him to fetch it; but on his return he informed her that the cook had melted it down and was now in a cake of wax. 'Never mind, bring it out as it is, the bees will soon turn it into comb again.'—WM. N. G., Hon. Sec. D. & E. B. K. A.

North Leicestershire.—Driving bees for cottagers and feeding up stocks have been the chief occupations of bee-keepers during the last fortnight. Applications for driving assistance still come in, but, unfortunately, almost too late. Bees have been rather active for the time of the year in spite of wet and cold. The sudden rise in temperature has set them to work on the ivy. Total rainfall for September, 5·81 in.—E.B.

Honey Cott, Weston, Leamington, Sept. 25th.—I have been feeding up stocks that were short of food, and making up a few stocks with driven bees by putting three or four lots together. I gave them the spare combs that have been taken from stocks that I have shut up closer for winter, so they have no comb-building to do, only to store the food I gave them and seal it up. I have also been taking away old queens and giving young ones in their places.—JOHN WALTON.

Bewdley, Worcestershire, September 30.—As the season is now nearly over, I have a little more time to write an Echo. From what I have seen both in Worcestershire and Oxfordshire, this has been but a poor honey-season; only here and there has there been any amount obtained, and, I judge, that mostly from the limes. Although my hives stand within 200 yards of the heather, I do not find they are increasing their stores from it, though we have had some magnificent and hot weather since it came into bloom. I was quite hoping to save feeding-up for winter by leaving the heather-honey for their winter stores, but am greatly disappointed. A correspondent in Oxford writes me that there are two aloe-trees now in bloom in the Botanical Gardens of that city, and that they are visited by the bees in thousands, both Black and Ligurians,—quite a centenary for our little friends.—C. BROWN.

Northumberland, 30th September.—We bee-keepers here have had a very bad summer. No flower-honey when at starvation's point. When sent to the heather they have gained a good deal of weight, but very little put in sections. Splendid for going into winter. I will have about 70 or 80 very fair 2 lb., and about 30 or 40 1½ lb. ones—very good ones, and about as many not sealed; but then I had 50 at heather. I hear of some skeppists that have got off the tops about 20 lbs., but this is not general.—WM. CODLENS.

Leslie, Fife.—Hives in this district are now all fed and packed up for winter. The food almost universally used here is Dutch crushed sugar (sometimes Greenock soft sugar) reduced to syrup by the addition of one pint of water to two pounds of sugar with a little vinegar added. For myself I give each hive 30 lbs. of such syrup, which they store in less than 48 hours. It is better to err on the safe side, and with a dose like this I close up the hives for winter, and never look at them till the beginning of March, when I have always found plenty of sealed meat, and the bees covering all the frames. I reduce the bees of twenty frames to seven, or at most nine frames; pack the space between the dummies and sides of hive with fleece wool, cover the top of bars with six or eight plies of old carpet, and then place a fleece wool or chaff cushion on top of carpet and side packing, put on the roof over all, and with this treatment my bees have always done well. Owing to natural breeding being discontinued very early this season hives go into winter quarters much weaker this year; and in some cases I hear of there is little chance of them surviving the winter. Weather good at present with occasional frosts at night. Rainfall for September 3·2 inches.—J. L.

Brailhill, near Rumbling Bridge, Perthshire.—I am sorry to have to give you the very worst possible accounts of the bees in this neighbourhood, all along the south face of the Ochils there has scarcely been a pound of honey made here this year, and very many of the bees are dead of pure starvation. I started this spring with five hives, and had seven swarms, the hives are still alive, but the swarms, some very strong, others weak, are all dead; and it is just the same complaint from every one else. Many hives are taken from the villages about the hillfoots to the heather, and instead of being filled up with fine heather honey as in former years, they have gained nothing on the heather. And it cannot be said to be on account of the want of clover, there was plenty of it, and plenty of flowers too, but there seems to have been no honey in it from the wet; also there was so much wet weather that the bees could not well go out to hunt for what little there was; in July there were over four, and in August over five inches of rain. I did not examine my swarms, as I saw the bees flying in and out, and supposed they were all right, until I found they were all dead, and now I have commenced feeding my hives.—J. R. HAIG.

Donegal, Finn Valley, Sept. 24.—So far as I know, there has been scarcely any surplus honey in this district this season. Stocks of bees in straw skeps have died in many cases, and in one skep, at least, the bees all died leaving honey in the comb. A few days ago I drove two casts of bees for a cottager, and found scarcely a pound of honey in the two. In all the straw skeps I have seen, the bees are few in numbers, even in old stocks and top swarms. Besides myself only one person to my knowledge, within a radius of four miles, has frame-hives, but probably next year will tell a different tale, as the superiority of the moveable-comb hives over the straw skeps has been thoroughly proved by the respective conditions of the two kinds at the end of the honey-season. In my bar-frame hive, the frames contain nearly half a square foot each of sealed honey, and are full of bees, although the queens have not begun to lay. I hope my hives, four in number, may pass the winter safely,

but I am afraid few skeps will have tenants in spring.—APICULA.

The following is taken from the *Morning Post* of October 2 :—

'According to the last number of the *British Bee Journal* we imported during the month of August of the present year no less than 6262*l.* worth of honey from foreign countries. In these columns I have many times urged that bee-keeping is an industry that deserves not only every encouragement, but that it is one that with but little attention and care ought to pay the rent of every cottage in the kingdom. Yet the very number of the organ of the British Bee-keepers' Association—the parent of no less than thirty-four county associations—finds itself compelled to state that that society has been sadly crippled owing to its shows at Bridgwater and Kensington having entailed heavy losses this year. It is a sad commentary on the indifference of the people to this subject, and to the fact that they will sit down and care nothing about the amounts they pay to the foreigner for articles that can be easily produced at home. In the case of honey, it is absolutely inexcusable, for the article is produced all around us, and we rather see it wasted 'on the desert air' than simply collect it. Every flower is a honey manufactory, and when the honey is made it is either yielded up gladly to the busy bee or it is wasted. How many people ever think that the fragrant scent thrown off from a field of clover, from the heather on the moors, or from the brilliantly dotted hedgerows, is simply caused by the flowers throwing off their honey? A flower is like a cow in one respect. The cow secretes her milk, and, if the milk is not taken from her, nature will assist itself, and the fluid will be thrown out on the ground. So it is with the honey secreted in the flower. Tons are every year wasted in England, and yet we pay the foreigner over 6000 in one month for honey that he is clever enough to gather. This fact is not creditable to us.'

Queries and Replies.

QUERY No. 709.—I packed one hive for the winter on the 22nd Sept., and removed three frames out of a total of eight, as the latter number was too much for the bees to cover. Now several of the combs in this hive were very dark in colour and contained a large number of sealed cells with dead larvæ in. 1. *Dead Larvæ.*—Is this usual at the close of the season, or is it owing to the bees having too much room in the summer? It cannot be dysentery, I fancy, as the bees are in good health, although not very numerous, and the combs do not emit any disagreeable smell. Besides, there were some few young bees hatching out in the midst of these decayed larvæ. This hive has not been strong all the summer, and has given no honey. Do you think the queen is too old? 2. *Re-queening.*—If so, what is the very earliest time that it could be changed for a young queen with safety? Is March too early? 3. *Stimulative Food.*—Would you also kindly inform me if it is wise to stimulate bees in spring (say March) to breed early when they have plenty of stores left? Does it not induce them to fly abroad when the weather is still too cold for them? —E. POLAND, *Blackheath.*

REPLY TO QUERY No. 709.—1. Are you quite certain that the brood is dead? If so, it may be the early stage of an attack of foul brood, and the dwindling of the population may have arisen from this cause. Otherwise it probably arises from an aged and failing queen. 2. There is still time to give another queen, but this would be useless, unless the population is increased by the addition of more bees. 3. Stimulation by gentle feeding is useful at spring, but it should be done judiciously during fine weather, and practised chiefly on strong colonies.

QUERY No. 710.—Would you have the kindness to explain the following misadventure to a hive of black bees? The queen was two years old, the hive strong in bees, and done fairly well in the past very indifferent season. I removed the super and extracted a few pounds of honey five weeks ago. On the 14th of September I found that there was not sufficient honey to winter the bees safely. I therefore withdrew the empty bars, and began to feed as rapidly as possible. The bees took down two claret bottles (reputed quarts) daily for five days. On the sixth morning I found the queen with about a dozen attendant bees behind the dummy. She appeared to be chilled and feeble. With a feather I replaced her in the middle of the hive. I ceased feeding, and in two days examined the bees, finding the cells filled with unsealed honey, and about eight queen-cells were being formed. This was proof sufficient, I suppose, that the queen was dead. I therefore cut out the cells, and threw in a skepful of driven bees. The hive is now apparently doing well. Why did the queen get behind the dummy? Was the feeding too rapid, and in consequence did the queen go in search of empty cells for the purpose of laying? I should have mentioned that the shoulders of my bars fix but indifferently well, and I had corrected the deficiencies with paper and wax. One of these stoppages was pushed aside, and thus the queen was enabled to get outside the bars.—ABERHONDDU.

REPLY TO QUERY No. 710.—The queen was dethroned by the bees, and, being driven out, escaped behind the division-board, probably from old age and consequent infertility. You do not say how many frames you removed; possibly too many, considering the early time at which it was done. We do not approve of crowding the bees too closely, even for the winter months, and it should never be done so early as the middle of September. Well-fitting frames are essential to success.

QUERY No. 711.—A ten-frame hive full of comb, the stock of which perished during the winter, was taken possession of early in June by a swarm (no owner to be found). The hive had been meddled with as the frames were not properly arranged. On inspection some three weeks after, the frames were found to overlap, and four were joined together, the bees having built across. 1. *Rectification of Frames.*—What am I to do in order to prepare them for winter? Must I leave them alone or separate the combs and take some of the frames out? No honey has been taken from the hive, the only frame I could take out is *full* of honey, the other frames are well supplied as far as I can see. 2. *Removal of Superfluous Frames.*—Is it absolutely necessary to take some of the frames out? 3. *Winter Passages.*—Is it absolutely necessary to cut a hole through each comb for the passage of the bees in winter? If so, the frames *must* be taken out. I thought at one time of getting a new hive and transferring the bees. Must I also transfer the comb? Is it too late for that?—W. H. PHILIPS, *Bedford.*

REPLY TO QUERY No. 711.—1. It is unfortunate that the frames were not rectified when first discovered to be uneven. If the frames, as you say, were full of comb when the bees took possession, there can only be a few attachments between them. Take advantage of the first fine day, and, gently taking out each comb in order, cut away the excrescences and return the combs to the same position, reserving the outside frames for your own use if the bees have sufficient winter store without them, and closing up with division boards for winter. 2. It is not absolutely necessary, but if the winter prove severe, the honey in the outside combs will 'candy,' or become granulated, and will be worse than useless, if the bees have enough without it. 3. It is necessary that the bees should have a passage-way through the combs, or over the top of the frames beneath the quilt. When performing the operation of straightening the combs it will

be an easy matter to cut holes through them. It is too late to transfer. If you did so, and cold weather set in, you would lose your bees. It would be better even to leave them untouched until spring.

QUERY No. 712.—1. *Marking Queen.*—When putting a slight patch of colour on the thorax of a queen, whether should I use ordinary red paint made from red lead or water colour? Can I thus mark a queen before releasing her from a cage, or would it not cause the bees to encase her? 2. *Cutting Brood.*—What is meant by 'cutting brood?' 3. *Abbott's Standard Hive.*—What are the advantages of the high outer walls in Abbott's Standard Hive? In such hives how is it possible to put on supers without crushing the bees? 4. *Candy.*—In Mr. Hewitt's plan of candy feeding, does he mean to give the bees no honey at all—nothing but the candy? Do you think, would a frame of candy support a stock of bees as well as 30 lbs. of syrup (which is considered a good winter store)? Would you recommend me to try a stock of condemned bees on candy? 5. *Driving.*—A few days ago I drove two small lots (casts) of condemned bees. The driving of each lot (about a quart) occupied nearly two hours, though I tapped the sides of the skeps thoroughly. About fifty bees would run up at a time, and then not one would move for perhaps ten minutes, when another start would be made. The bees had scarcely any honey, and I can't understand why they 'kept such a firm grip of their homesteads.' What do you consider the probable cause? 6. *Loss of Queens.*—When driving above-mentioned bees I captured the queens (both being young as the stocks were casts), and caged them in the driving skeps. When I took the skeps home, I put both lots together on three frames, and caged one queen, putting the other queen on a piece of sealed honey, intending next day to introduce her instead of one of my old queens. Next day I found her dead, and on the following day, when going to release the other queen, I found her also dead. What do you think was the cause of this? I did not hurt the queens when catching them, and can't understand why they died. —QUAESITOR.

REPLY TO QUERY No. 712.—1. Water colour is preferable. Put the mark on the queen before you cage her, the process might probably affect the taste and smell of the queen and cause her to be balled. 2. 'Cutting brood' is a term employed by Mr. Hewitt, which we quoted, but it should have been printed as a quotation: we judge, however, from the context that Mr. Hewitt means dividing two or more sheets of combs containing brood by placing a sheet of candy between; most bee-keepers say 'dividing the brood nest,' or 'spreading the brood.' 4. The high outer walls of Abbott's Combination Hives prevent the quilt blowing off in windy weather, and leave a space which is easily filled with chaff or other substance in the winter. We have in windy weather found it almost impossible to replace the quilt of a hive with a flat top. The hive being nearly double as long as the super, and being several inches wider, enables the super to be put on without difficulty, as plenty of lateral motion may be obtained; but, in any case, a little smoke on the top would clear the bees while it is being put on. 4. Yes. Mr. Hewitt recommends bringing them to nearly starving point before giving the candy. We do not think a frame of candy will support a stock of bees as well as 30 lbs. of syrup. If you do not value the condemned bees very much, you may by all means try the experiment. Attend to all the details and give it a fair trial. 5. It is frequently very troublesome to get small lots to leave, close driving succeeds better sometimes, or you should have set the empty skep on the ground and supported one edge on a stone so that they might have run in and held the stock in front of it, and letting it fall out of your hands and catching it again about one foot from the ground, you would have found the greater portion would have been thrown out; or a good sprinkling with warm syrup five minutes before you commenced and then close drove them would have probably saved you much time. 6. You should have caged the queens on unsealed honey, the probability is they were starved, the bees will sometimes feed them, but not always.

QUERY No. 713.—*Foundation Super.*—I forward the remains of wax-foundation from a 1-lb. section after the eatable portion had been taken from it, and shall be glad to know the cause of this large residuum of wax, and whether any foundation can be procured that will be more completely utilised by the bees.—H. J. BARRETT, *Langford Park, Maldon.*

REPLY TO QUERY No. 713.—For use in sections we prefer foundation with the natural base, as we find that flat-bottomed foundation is seldom worked as thinly as natural comb, even when made very light. We judge from the appearance of the sample you have sent us that you have used in the supers a foundation intended only for use in stock hives. A special *super* foundation, one pound of which should have contained about ten superficial feet, should have been used.

QUERY No. 714.—*Size of Extractors.*—How large frames can be used in the extractors now made? 2. *Dividers.*—Must I put dividers in bar-frame supers, the same as used in section supers? 3. *Floor-board.*—Is it necessary to have the floorboard separate from the hive? I find the bees generally stick them down so that they are not easily removed.—R. COOKE, *Chailey.*

REPLY TO QUERY No. 714.—1. Most extractors are now made to take Association frames; but some makers keep a machine which will take any frames up to 12" × 20". 2. If you desire to have the walls absolutely straight it is desirable to insert separators. 3. It is not necessary to have separate floor-boards, it is desirable in the smaller hives for the convenience of cleaning them; but in the larger ones it is better to have them fixed, as it is easy to shift the positions of the frames.

QUERY No. 715.—1. *Uniting a Skep to a Bar-frame.* I find it much harder to unite a skep to a bar-frame than to drive two skeps; because the bees in a bar-frame, when shaken or brushed off, rise into the air to such an extent, that few are left to mix and shake together. The *Bee Journal* always takes, as a matter of course, the facility of dealing with a bar-frame; whereas, for the above reason, I find it far harder to deal with than the skeps. How am I, therefore, to prevent the bees rising to this extent; or what am I to do with them when they have thus risen? 2. *Presence of Drones.*—Out of six hives, three have apparently fertile workers, for they have no queens, and are largely tenanted (October 4th) by drones, which, I suspect, denotes the presence of this pest. May I trust to the destruction of this fertile worker by a queen if I unite each of my queenless hives to one with a queen; or should I follow your instructions to get rid of the fertile worker before uniting?—G. A. R.

REPLY TO QUERY No. 715.—1. If you remove the bar-frame hive a little distance from its stand, and place a skep thereon, then shake and brush the bees from the frames on to the floor-board on which the skep stands, the bees which rise will very soon join the others, and all may then be united with the bees driven from the other skep. 2. The presence of drones denotes the absence of a queen, but not necessarily the presence of a fertile worker; the presence of drone brood at this season would, however, do so. You may unite one or all of your queenless stocks to one with a queen, and the fertile worker will disappear.

QUERY No. 716.—1. *Feeding.*—In feeding up to weight is 1 lb. of well-made syrup counted as 1 lb. of food, or is only the amount of sugar contained in it counted? 2. *Weight of Food.*—Does one square inch of honey sealed on both sides reckon as 1 oz. of honey?

3. *Amount of Food for Wintering.*—How many lbs. of syrup would you feed a stock with 200 square inches of honey? 4. *Candy.*—Do you think a stock would be safe with 100 square inches of sealed honey (or syrup) and one frame of Hewitt's candy?—HENRY H. SELBY HELE, *Dunkeswell Vicarage, Honiton, Devon.*

REPLY TO QUERY No. 716.—The weight of sugar *alone* should be reckoned, since the water is supposed to be eliminated by the bees in the process of ripening or evaporation. 2. This depends, *a*, upon the thickness of the comb, *b*, on the quality of the honey, or, rather, on its specific gravity, which is usually greater in the body of the hive than it is in sections. The inside dimensions of the 1-lb. section are 4 in. × 4 in., and, when well filled, it contains 1 lb. of comb honey. In order to hold this quantity the comb must be at least $1\frac{3}{4}$ in. in thickness. The ordinary brood combs, in a moveable-comb hive, are at most $1\frac{1}{4}$ in.,—more often 1 in. only, therefore a square inch of such comb would not contain 1 oz. of honey. The *honey* in brood combs, however, is stored at the top and behind, and the cells are often lengthened until these portions of the combs nearly touch each other, thus forming, as it were, a canopy over and around the brood-nest; for practical purposes, therefore, we may consider a square inch of comb to contain 1 oz. of honey. 3. According to the rule that 'a strong stock should go into winter quarters with 25 lbs. of honey,' and acting on the rule laid down above, a colony with 200 square inches of comb-honey, sealed on both sides, would require $12\frac{1}{2}$ lbs. of sugar made into thick syrup, by the common recipe, to carry it through the winter. Practically we think 20 lbs. of food sufficient, and should not give more than 8 lbs. of sugar in this case. If syrup is given it should be done immediately, and as rapidly as possible, and if the weather continues warm it will be sealed. Otherwise it will prove a source of danger, since dysentery will probably ensue. 4. We consider that Mr. Hewitt's plan has not been sufficiently put to the test, at present, to warrant us in recommending it as *un fait accompli*. In the case you put we should prefer to supply the candy at the top of the frames under the quilt.

NOTICES TO CORRESPONDENTS & INQUIRERS.

W. T. B.—In our notice of our visit to Mr. Neighbour at Buncefield, Hemel Hempstead, we mentioned that he had adapted the Association frame to all his hives, and we would recommend you to do likewise.

J. HALL, *Wigton.*—1. *Hedgehogs.*—We are not in the habit of classing hedgehogs among the enemies of bees. Being insectivorous animals, they feed on the dead bodies of bees that may be found on the ground. 2. *Fertile Worker.*—See reply to Query No. 714 and previous *Journals.*

J. ROBINSON, *Bury St. Edmunds.*—*Uniting.*—If united (?) in the way suggested, the bees would be nearly sure to fight badly. If separated for a short time by perforated zinc, the probability of fight would be diminished, but we would advise that the stocks be first taken from the combs, so that they should have no bone for contention.

G. W. FOSTER, *Brailsford, Derby.*—1. *Irregular Swarming.*—Yes; eight to ten days is the usual interval. Probably bad weather detained the swarm. The 'third swarm' can hardly be termed so. It was the result of a fresh swarming impulse, arising after the first was satisfied. 2. *Flightiness of Bees.*—Leave them alone; the flightiness will have disappeared with another year of age. 3. *Queen-cells.*—Old queen-cells are cut down to the shape of an acorn-cup, and are not used again.

BUSY BEE, *Coleraine.*—1. *Distance of Hives.*—If your hives have 9 inches clear between them, they (if of Standard size) will be about 3 ft. from centre to centre. We prefer, however, to have sufficient space between the hives to stand in or pass through to the back, more for convenience than necessity. 2. *Aspect for Hives.*—You would do well to make your hives face the east or south-east if you can. If they face the north, let them not be under a wall so that they get no sun. This is far more objectionable than the way the entrances face. 3. *Winter Passages.*—It is a matter of opinion, some expert bee-keepers adopting one plan and some the other. Cutting passages is not such a troublesome operation as you seem to think. Put a knife through the comb and turn it round, so as to remove a piece about $\frac{3}{4}$ to 1 in. across. 4. *Wide-ended Frames.*—Frames with wide sides are troublesome to manipulate, owing to the amount of propolisation. By all means use wide shoulders to your frames. Dr. Pine's metal ends are easily fitted to any pattern of frame. 5. *Advantages of Ligurians.*—The leaven of Ligurian blood has so spread, that it is difficult now to find black bees which do not show signs of a remote cross with the yellow ones. Therefore the superiority of Italians is not now so marked as it was at their first introduction. Their beauty is, however, a great recommendation. 6. *Number of Frames at Breeding Time.*—In the height of breeding time ten or even twelve Standard frames are not too many for a strong stock. The hive should be long enough to contain fourteen or fifteen frames, and reduced in length by a dummy. If you intend extracting only, you had better adopt the doubling system. See back numbers of *Journal.*

L. SACHE, *Sidcup.*—The brood forwarded is a bad case of chilled brood rapidly developing into 'foul.' We recommend you at once to adopt the necessary precautions as given in previous *Journals.*

INQUIRENDO, *Cornwall.*—*A Weak Stock.*—The bees would have all died out long ago had they been queenless. They were so weak that the natural loss of life has kept pace with the small increase by the brood they were able to attend to. They should be united now, or they will be dead by next year.

LITTLEJOHN, *Coleraine.*—We should be obliged by being favoured with your name and address, as we desire to make a suggestion with respect to the article forwarded.

J. IRWIN-PACKINGTON, *Buckhurst.*—It is to be regretted that you did not establish your driven bees in a bar-frame hive. There are difficulties with skeps which do not present themselves in bar-frames. From the amount of syrup consumed by your bees, and the signs mentioned, we think there is every prospect of their passing through the winter successfully. On the approach of cold weather, narrow still more the entrances, and cover the exterior of the hive so that it is rendered impervious to the rain or snow.

E. WELLS, *Maidstone.*—Mr. Ditty informs us that by the 'long, grey-coloured German or Black bee' he means 'the common English honey bee.'

J. PERRY, *Banbury.*—We very much regret that the reply given has not been satisfactory. It is with the greatest reluctance that we pass any opinion on the reasons of a judge's award. The matter in question should be dealt with by the Association of the County in which the show was held.

IRASCIBILITY OF BEES AT WIMBORNE.—On Wednesday, 12th September, a parrot belonging to a railway signalman, named Jackman, of Wimborne, was stung to death by bees. Jackman, who has about seven stocks in his garden, had placed the cage out of doors almost daily in fine weather, and the bird had never been attacked before. It is supposed that it must have struck at the bees either with its beak or wings, and that those near flew into the cage and commenced the attack. Most of the stings were inflicted on the head, and the unfortunate bird died in seven or eight minutes.—J. W. C.

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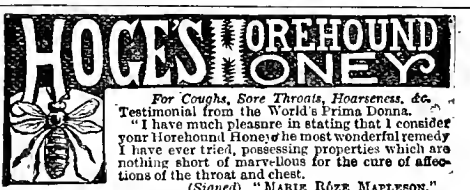
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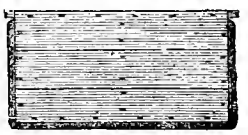

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THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.

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Editorial, Notices, &c.

NOVEMBER.

We have intimated in a previous number that there was a considerable deficiency upon the two large shows held this year by the British Bee-keepers' Association at Bridgewater and Knightsbridge. We understand that this deficiency amounted to no less than One Hundred and Fifty Pounds. This amount has been temporarily met by the Committee making a loan to the Association of 100*l.*, to bear interest at 5 per cent, and by the President, the Baroness Burdett-Contts, advancing 50*l.* without requiring any interest. It is hoped that the onward work of the Association may not be hampered or stayed by this debt, but that the Members of the Association, and the affiliated Associations, to whom an appeal will shortly be issued, will come forward with liberal donations, so as to repay the sums advanced before the close of the present year.

BLIGH COMPETITION.

In this number will be found the result of the experiment variously styled the 'Bligh,' or 'the Economic Apiaries Competition.' It will have a special interest to all bee-keepers. We give the judges' report on their award of prizes, the diaries of the competitors, and the several balance-sheets.

In a recent number we stated the object designed by the Hon. and Rev. H. Bligh in originating this competition, viz., that there should be some carefully ascertained and properly authenticated information as to the cost and profit of bee-keeping generally, and also a comparison between the various systems now in use. In order to bring this important matter in a practical form before bee-keepers the Hon. and Rev. H. Bligh offered to the Committee of the British Bee-keepers' Association 10*l.* to be awarded in prizes according to a scheme which eventually was shaped and governed by the rules which we have reproduced. The hope in the originator's mind was that the cottager, witnessing the operations of skilled bee-keepers in his own garden, would be convinced that bee-keeping might be pursued with a certain hope of profit, and that, viewing the results of improved systems of bee-keeping, he might be induced to follow them. We can conceive that the results of the competition, now they are before us, have not been altogether such as were anticipated. We might have expected that the systems of the frame-hive, the skep, and the Stewarton, would have been brought into more distinct competition. As it is, the contest has been only among bar-framists; but each and all of the competitors have conducted the contest in accordance with their separate views and experience. We are not desirous of analysing the diaries or of adding aught to the carefully considered report of the judges. The records from the diaries will be found most interesting; and the educational result arising from following their practice from day to day, and from season to season, must prove of the greatest service not only to the cottager but also to the established bee-keeper.

It is a matter of deep regret that so few of the original competitors have fought their way to the end; and that of those who with great pertinacity have reached the goal, so large a proportion have found themselves disqualified by some infringement of the not-too-stringent rules. The lessons, however, derivable from the failures will prove as serviceable as those from the successes. The whole of the diaries are worthy of attentive perusal, and bee-keeping must receive a fresh impulse from their publication. If possible, we should wish to see the diaries produced of some of those who enrolled their names at starting, so that from the greater number of those who failed a larger amount of experience might be gained.

We hope that this first competition may not be the last, and that we may witness a repetition of it not only under the auspices of the British Bee-keepers' Association, but that the various County Associations may see that the object of their organization cannot more certainly be attained than by inaugurating similar competitions in their respective localities. It is a too-frequent complaint that in judging the best prizes are awarded to large hive-makers; by offering prizes on the basis of the Bligh Competition, this complaint might be avoided, and there would be to both cottagers and skilled bee-keepers a clear and open field, and an object to be attained in which all might take a part.

The bee-keeping world, we feel, are under a deep debt of gratitude to the originator for his practical suggestion, and for his intelligent oversight of the undertaking.—G. H., *Ealing.*

NOTICE.

It has been deemed desirable, from the amount of space occupied by the 'Bligh Competition,' to defer to our next Number the Lecture by Mr. Otto Hehner on the 'Chemistry of the Hive,' when we hope to publish it *in extenso* with the discussion which ensued on its delivery; and we are pleased also to announce that in the number succeeding the appearance of the lecture there will be a paper by Mr. Hehner on 'The Methods of distinguishing Honey and Wax from their Adulterants.'

A Hint to Nottingham Bee-keepers.—The Rev. P. F. Boultbee, late of Escot, Ottery St. Mary, an enthusiastic and successful bee-keeper, and a valued member of the British Bee-keepers' Association, has been presented to a living in Nottingham.

Mr. Cheshire being constantly troubled with applications for hives and other bee-keeping appliances, is anxious that it should be publicly known that he is not a dealer in hives, or other apparatus for bee-keeping, and that he cannot undertake to reply to letters addressed to him under such misapprehension.

ECONOMIC APIARIES COMPETITION.

AWARDS OF THE JUDGES.

As a considerable time has elapsed since the Rules of this Competition were published, we reprint them *in extenso*.

1. The object of this competition is to show the relative merits of different systems of bee-keeping, and to prove that bee-keeping, if conducted on economical principles, is highly remunerative to the bee-keeper.

2. Competitors shall be members of County Associations affiliated with the British Bee-keepers' Association residing within the recognised boundaries of their respective counties, or members of the British Bee-keepers' Association residing in the county of Middlesex. Each competitor shall be limited to one entry, and shall pay an entrance-fee of 5*s*.

3. Prizes of 6*l*., 5*l*., 4*l*., 3*l*., 2*l*., 1*l*., shall be awarded in order of merit to the competitors, who shall derive the greatest profits from an experimental apiary of not more than two hives at the outset which may be increased to any extent by natural or artificial swarming, the total capital to be employed in commencing and maintaining the apiary must not exceed 2*l*., and the competition to extend from May 20th, 1882, to August 30th, 1883.

4. The apiary shall be established in the garden of some cottager to be selected by the competitor, and approved by the Secretary of the County Association, or in the case of the county of Middlesex by the Secretary of the British Bee-keepers' Association.

5. The competitors shall keep a diary (a duplicate of which shall be kept at the cottage), in which all transactions connected with the apiary shall be recorded, and each item of expenditure and receipt entered. Such diary to become the property of the British Bee-keepers' Association at the close of the competition.

6. Each hive shall be weighed, and the weight minus the roof and covering shall be recorded in the diary. The hives shall be stocked with bees without combs, the bees to be valued at 4*s*. per lb. Comb foundation may be used at any period of the competition at 2*s*. 6*d*. per lb. for thick, and 3*s*. per lb. for thin. No bees, brood, or natural comb, to be imported into the apiary after commencing. Queens may be introduced into the hives at any period of the competition and shall be valued as follows:—

In the month of May	. . . .	8*s*. each,
„ „ „ „ June	. . . .	6*s*. „
„ „ „ „ July	. . . .	4*s*. „
„ any other month	. . . .	3*s*. „

All expenses incurred after the commencement of the competition must be defrayed from the original capital of 2*l*. Vouchers must be produced for all purchases made throughout the competition, including hives, bees, and any appliances used at the commencement.

7. Each competitor may make his own hives and supers, but vouchers for the cost of the materials must be produced and the workmanship valued by the Secretary of the County Association or an expert appointed by him.

8. Every amount expended in the apiary for food or any other incidental matter of whatever nature shall be charged against the apiary, and everything legitimately sold shall be set down in its favour. Vouchers must be produced for all swarms and honey sold during the competition.

9. The Secretary of the County Association may visit the competing apiary at any reasonable time, or may appoint an expert to do so. The record of such visits, together with any remarks which it may be advisable to make, to be entered in the diary, which shall always be accessible for the purpose.

10. The competitor shall certify that during its continuance he has fulfilled all the conditions imposed by these rules, and that all his entries in the diary are true. The Secretary or his expert shall certify as to the quantity and value of the honey produced by each competitor.

11. Any attempt at fraud will be punished by disqualification.

Report of the Judges.

Out of seventeen competitors seven only have sent in their papers to the Judges.

Mr. Kirk Allen, The Rosery, Fen Drayton, St. Ives, Hunts.

Mr. R. W. Davies, 16 Albert Road, Braintree, Essex.

Mr. H. V. Edwards, Mackworth, Derby.

Mr. J. M. Hooker, Sevenoaks, Kent.

Mr. G. T. Melbourne, Glebe Farm, Nocton Heath, Lincoln.

Rev. F. T. Scott, Hartlip Vicarage, Sittingbourne, Kent.

Mr. T. F. Ward, Church House, Highgate, Middlesex.

Out of this number, the Judges regret exceedingly that they have felt bound to exclude from prizes three of the competitors whom they do not find to have fulfilled in all respects the Rules by which the competition was guarded. The Judges wish, however, to state that in no case was the disqualification made under Rule 11, but they consider,—1. That the Rev. F. T. Scott has not complied with Rule 5, as no account or sufficient diary has been sent in by him. 2. That Mr. Melbourn has infringed Rule 3 by introducing into his apiary a new hive at a date when his account does not show sufficient capital for its purchase, and Rule 5 by the incomplete and irregular manner of keeping his Diary and accounts—and 3. That Mr. Kirk Allen has infringed Rule 6 by introducing comb into his hive.

Four competitors only are left, and to these the Judges award the prizes in the following order:—

1st Prize, 6*l*.	. .	Mr. J. M. Hooker.
2nd „ 5*l*.	. .	Mr. R. W. Davies.
3rd „ 4*l*.	. .	Mr. T. F. Ward.
4th „ 3*l*.	. .	Mr. H. V. Edwards.

The following table shows in comparison the results gained by the different competitors, as shown by their several diaries.

	First Cost of Hives, &c.	Cost of Bees.	Total Outgoings.	Honey taken, in lbs.			Swarms, &c., Sold.	Stocks left in hand.
				Section.	Extr'd.	Total.		
	£ s. d.	£ s. d.	£ s. d.					
Mr. Kirk Allen	0 17 10	0 10 0	1 19 10	...	80	80	... ...	2
Mr. R. W. Davies ...	0 5 7	1 1 0	1 15 5	46	6	52	1 Swarm.	3
Mr. H. V Edwards ...	0 14 2	0 16 0	2 19 7	21	24	45	... ...	2
Mr. J. M. Hooker ...	0 14 6	0 10 0	3 7 4	82	40	122	... ...	3
Mr. G. T. Melbourn ...	0 18 10½	0 16 0	3 13 6	...	27	27	2 Queens. 2 Queens and Brood. Triple Hive with Combs, &c. 1 Stock. Triple Hive and 3 Stocks.	2
Rev. F. T. Scott	(1 Hive.)	1 4 0	... ...	30	...	30	1 Swarm.	1
Mr. T. F. Ward	0 6 4	1 1 0	1 19 3	37	13	50	... ...	2

Appended to this report are the diaries and balance-sheets of the competitors, which are full of interesting information. The diaries have been somewhat abridged, and are not therefore always given in the exact words of the original writer, but contain, it is believed, faithful reproduction of their recorded statements. The balance-sheets are those furnished by the competitors with their own valuations of un-marketed produce. Entries in the diaries or accounts, which were made irregularly, are printed *in order of date* according to the dates given by the competitor.

HENRY BLIGH.
DUNCAN STEWART.
W. KIRCHNER.

DIARIES AND BALANCE-SHEETS.

MR. KIRK ALLEN, THE ROSERY, FEN DRAYTON, ST. IVES, HUNTS.

May 27th, 1882.—Commenced competition by making two artificial swarms and placed them in two hives. No. 1, made out of old box, cost 1*s.*; 16 ft. deal, 1*s.* 4*d.*; nails, 2*d.*; labour, 2*s.* 6*d.*; quilts, 6*d.*; feeder, 6*d.*; 12 frames, 3*s.*; ¼ lb. thin foundation, 9*d.*; total, 9*s.* 9*d.* Weight, with 4 frames and quilt, 42 lbs. No. 2. Small hive; 3 boxes, 1*s.*; 8 ft. deal, 8*d.*; nails, 2*d.*; labour, 2*s.* 6*d.*; 12 frames, 3*s.*; quilts, 6*d.*; feeder, 6*d.*; ¼ lb. thin foundation, 9*d.*; total, 9*s.* 1*d.* Weight, with 4 frames and quilt, 24½ lbs. Put 2 lbs. of bees in No. 1, and ½ lb. bees in No. 2, four frames in each. Note. I had intended to put 1 lb. of bees in No. 2, but as there were only ½ lb., determined to do the best I could with them.

29*th.*—No. 1, working all 4 frames and below guides; No. 2 only a small part of 1 frame.

June 5th.—Exchanged frame full of brood from No. 1, for 1 partly worked out in No. 2. Gave No. 2 feeder full of syrup (value, 2*d.*). Would have preferred to have fed both hives slowly, but had not time to attend to it.

14*th.*—No. 1 has all 4 frames worked out, and those full of brood. Gave No. 2 syrup (2*d.*).

20*th.*—Put 3 frames with full sheets of foundation in No. 1, placing them between frames of brood.

20*th.*—Inserted 1 frame with full sheet of foundation in centre of No. 2.

July 14*th.*—Inserted 1 frame with half sheet of foundation in centre of No. 2; also put outside frames in both hives near the middle and between brood. No honey in either hive to speak of. Gave ½ lb. honey diluted with water to each hive.

August 11*th.*—Extracted 14 lbs. of honey from the 2 hives (9 frames).

21*st.*—Extracted 7½ lbs. of honey, 6 frames, from No. 1, and 3 frames from No. 2.

From this day till September 26th fed nearly every day, giving in all syrup to the value of 2*s.* 8*d.* Mustard in bloom within 1½ miles during August and up to September 19th, but only a few days fine enough for bees to work.

September 26th.—Hives left to stand the winter without any alteration, feeders only being set with tops upwards to allow slight ventilation.

March 1*st*, 1883.—Fed both hives; ¾ lb. thin syrup each, cost, 3¾*d.*

6*th.*—Ditto, ditto.

April 2nd.—Have not fed during severe weather. Gave each hive ¼ lb. thin syrup, cost 1½*d.* Repeated this April 4th, 6th, 8th, 10th, 12th, 13th, 16th, 17th, 18th, 19th, 20th (½ lb.), 23rd, 24th, 29th, May 4th, 8th (½ lb.). Total cost, spring feeding, 2*s.* 8½*d.*

June 7th.—Put in 2 frames to each hive; 1 with foundation worked out, full size, to each, and the other with 2 inches of worked-out foundation, along the top for guides. These were inserted between combs of brood. Both hives have all frames full of brood and honey. (Unfortunately, this insertion of comb transgressed one of the rules of the competition, which expressly forbids the addition of natural comb, and the competitor was disqualified.)

21*st.*—Extracted 15 lbs. honey from the 2 hives from 10 frames.

July 1*st.*—No. 2 hive swarmed. Hived swarm in straw-hive, and kept it to put back in the morning.

2*nd.*—Cut out queen-cells and put in 3 frames with guide, and returned swarm by emptying it on board in front of hive, allowing the bees to run in. Gave a few puffs of smoke to both stock and swarm before emptying out the latter.

4*th.*—Extracted 13 lbs. from No. 1, and 12½ lbs. from No. 2.

August 30th.—Extracted 8 lbs. from No 1, and 10½ lbs. from No. 2. Took 5 frames out of each hive, and left them each 5 to winter in. The bees will now require slow continuous feeding. I prefer this method to giving larger quantities later on, as the continuous slow income encourages the bees to collect as long as anything can possibly be got, and the cost is much less than in any other way I know of.

The two seasons during which the competition has lasted have been the worst in this district I ever experienced. Clover and thyme blossom have not yielded anything worth notice in either year; and although the honey season is usually over in the early part of August, this season the last fortnight has proved about the best we have had all the year. I have not attempted to work sections, as, in the first place, there would have been no chance of getting them filled in such bad seasons; and having but little time to attend to my bees, I have endeavoured to work them in the most profitable manner without much attention. I think it will be seen that

even the straw-skep with its glass or super, or the Stewarton hive, would require quite as much attention as I have given to these. I expect competitors in districts where the honey-harvest has been fairly good will show a very much better result, as in good seasons I should expect at least three times the quantity of honey obtained. To show what a wretched season we have had here, I may say I drove a few days back six swarms and stocks for a neighbour from straw-skeps and cheese-boxes, the whole lot only giving 25 lbs. of honey, and two strong casts had not, at the same time, a drop of honey.

BALANCE SHEET.

1883.		*Receipts.*	£.	s.	d.
March	3.	21 lbs. honey, at 9*d.*	0	15	9
July	7.	15 lbs. honey	0	15	7
„	25.	14 lbs. honey	0	11	8
Aug.	25.	11½ lbs. honey	0	9	7
„	30.	18½ lbs. not sold, value at 10*d.* ..	0	15	5
			3	8	0
		Value of 2 stocks and hives, say	2	0	0
			5	8	0

1882.		*Payments.*	£.	s.	d.
May	27.	Cost of hive No. 1	0	9	3
		Cost of hive No. 2	0	8	7
		2½ lbs. of bees	0	10	0
June	14.	Syrup	0	0	4
„	20.	Foundation	0	1	10½
		Honey	0	0	6
Aug.	21.	Syrup	0	2	10½
1883.					
March	1.	Syrup	0	2	8½
June	7.	Comb	0	1	0
July	3.	Guide	0	0	2½
Aug.	30.	Use of extractor	0	2	6
			1	19	10
		Profit	3	8	2
			5	8	0

MR. R. W. DAVIES, 16 ALBERT ROAD, BRAINTREE.

May 20th, 1882.—Commenced the competition in Mr. Deal's Garden in Stisted, near Braintree, with two swarms. One weighing 2¾ lbs. was placed in old tea-chest (No. 1) in 12 rough frames fitted with strips of foundation on runners. Old carpet was wrapped round the box and put over the frames, and alighting-board nailed on. The whole was covered with an old piece of iron to keep off rain. Weight without bees, 16½ lbs. The other swarm, 2½ lbs., were put in a box (No. 2) purchased at the Braintree Co-operative Stores, fitted as the other with 10 frames and foundation, and covered with super-top and waste floor-cloth. Weight 14 lbs. Gave each hive half-a-pint of syrup.

30th.—Examined hives. Frames nearly all worked out, and plenty of brood and honey. Surrounding country now rich with flowers. Prospects good if weather permits.

June 3rd.—Put on 16 sections on one, and 18 on the other. Both promise to be excellent stocks. They are in a perfect 'Eldorado' of pasturage—a park full of all varieties of shrubs and trees close at hand; lime-trees abound, and there are three white clover-fields in the immediate neighbourhood.

10th.—Incessant rain this week.

17th.—Cold nights. Sections not commenced.

24th.—Plenty of flowers, but still bad weather. A few sections in rear of brood-nest begun. Old carpet-quilts added.

July 1st.—Fair quantity of honey in body-boxes, but none on top in supers. Season still most unfavourable.

August.—The honey-harvest over. Stocks very strong, but not sufficient houey to extract without impoverishing the bees.

December 20th.—Gave the bees 1½ lbs. of sugar-cake.

March 10th, 1883.—Surprised, after the open weather this winter, to find both stocks still well supplied with honey. Both stocks very strong and full of bees. 7 frames in No. 1 and 4 in No. 2 contained brood. Gave them 2 lbs. of sugar-syrup.

April 7th.—Queens laying vigorously. Spread the brood by putting those frames containing least alternately with those which were full. Gave 1 lb. syrup.

14th.—Hives full of bees and brood in abundance. Mr. Aubrey, the County Secretary, visited the apiary, and was surprised to see such strong stocks in makeshift hives. Out of 13 hives of his, and 20 of mine, there is not one to equal them. The cottagers are astonished to see the bees handled so freely, and are becoming courageous enough to come and stand over me when I am manipulating.

28th.—To-day Mr. Debnam, the County Expert, visited the apiary. He examined the bees, as well as the diary, and pronounced all satisfactory. Weather bad, days and nights cold. Have been spreading brood for some time. The hives full of bees and brood, but short of honey. Gave them 1 lb. of sugar in syrup.

May 14th.—Weather improved. Examined hives. Honey and pollen in abundance. Drones making their appearance. Cut out queen-cell from No. 1. This hive had shown indications of swarming a few days before.

15th.—Put 6 sections between the frames of No. 1, and 8 sections in rear of frames in No. 2. Noticed the bees covering bloom of *Salix alba* (common willow), which flowers much later than *Salix caprea* (common sallow). Hawthorn now nearly out in bloom.

19th.—Placed 18 sections on No. 1. Sections being worked out in rear of hives.

June 2nd.—Cut out 18 queen-cells from No. 1; took out 1 section.

9th.—No. 1 swarmed on to high tree. Could not reach them, so shook them off with long pole. They then flew to the stables of Stisted Hall and settled on the roof. Caught the queen just as she was entering an iron grating. Sold the swarm to Mr. May for 10*s.* 6*d.* Took off 1 section.

14th.—Took 10 sections from No. 1, and 4 from No. 2.

16th.—No. 2 swarmed. Mrs. Deal hived them in a straw skep. I did not hear of this for 2 days. I find it very detrimental to have the hives 2 miles away from my home.

18th.—Cut out odd pieces of comb from No. 2. Pasture all one could wish.

22nd.—Took 2 sections from No. 1.

July 4th.—Weather altered for the worse; wet days and cold nights. Took off 7 sections in the presence of several cottagers, who were much surprised and incredulous.

9th.—Weather a little improved. Took off 8 sections.

14th.—Took off 7 sections, and instructed several cottagers in new system of bee-keeping. Weather completely altered for the worse. We had a bee-tent at our Horticultural Show, and a double-walled hive which I offered for best cottager's exhibit of extracted honey was taken by a policeman with 66 lbs. I have been constantly employed in visiting the apiaries of the upper classes, and have given up my month's holiday in order to do so. The bee-fever seems to be rapidly spreading.

August 30th.—Extracted 4 frames, when extractor broke and I was forced to give up. Weight of hives now: No. 1, 54 lbs.; No. 2, 38 lbs.; Skep, 31 lbs. Took 6 sections from No. 2 and 5 from No. 1. I hope the British Bee-keepers' Association will soon find a market for their members' honey. I have still on hand 60 beautiful sec-

tions, and 170 lbs. run honey. My greatest take has been 63 sections from a last year's driven lot.

BALANCE SHEET.

1882.	*Payments.*	£.	*s.*	*d.*
May 20.	5¼ lbs. of bees	1	1	0
	Tea-chest	0	0	3
	Salmon-box	0	0	2½
	Frames and covers	0	2	8
	Foundation	0	2	6
Dec. 20.	Syrup and sugar-cake	0	0	10
1883.				
April 14.	5 lbs. sugar	0	1	8
May 19.	50 sections and foundations ..	0	2	8½
June 16.	Straw-skep	0	1	3
	Section-crates and separators ..	0	2	4
		1	15	5

1883.	*Receipts.*	£.	*s.*	*d.*
June 2.	Swarm, Mr. May	0	10	6
„ 22.	2 sections	0	3	0
	22 sections sold at Knightsbridge	1	7	6
July 12.	12 sections	0	15	0
	4 sections	0	5	0
		3	1	0

Profits—Cash balance		1	5	7
6 1-lb. sections, 6 lbs. extracted	not sold ..	?	?	?
Value of hives	No. 1, 54 lbs. / No. 2, 38 lbs. / No. 3, 31 lbs.	?	?	?

MR. H. V. EDWARDS, MACKWORTH, DERBY.

May 20th, 1882.—Commenced competition apiary in Mrs. Jackson's garden, Oakbrook, with a swarm weighing 4 lbs. The first cost of my stock was as follows:—Tea-chest, grocer's box, and 2 egg-boxes, 1*s.* 9*d.*; zinc runners, cork-dust, brown paper, paint, dummies, hinges, 2*s.* 7*d.*; 10 frames, 2 quilts, 2 feeding-stages, 2 bottles, alighting-board, 1*s.* 7*d.*; foundation, 2*s.* 6*d.*; 50 sections, crate, and foundation, 5*s.* 9*d.*; bees, 16*s.* Total, 1*l.* 10*s.* 2*d.*

June 15th.—Gave 1 pint syrup, cost 4*d.*

26*th*.—Put on crate of sections.

August 7th.—Took off 9 sections filled, and extracted 1½ lb. from 2 combs. Made artificial swarm by taking 3 combs with queen from the hive, and placed it on another stand. A new queen was raised in old hive and duly mated.

14*th*.—Gave 3 pints syrup at 4*d.* a-pint.

30*th*.—Gave 6 pints syrup.

September 10th.—Gave 3 pints syrup.

20*th*.—Left Oakbrook and went to reside at Mackworth, which is seven miles distant.

February 13th, 1883.—Examined hives; found them all right, but damp. Gave syrup to value of 1*s.*

March 14th.—Gave syrup, value 1*s.*

April 3rd.—Found plenty of brood. Bought sugar, value 2*s.*

30*th*.—Sugar, 2*s.*, bought for apiary.

May 11th.—Found the bees at the point of starvation. Left 3*s.* for sugar.

July 11th.—Put on two crates of sections. Both hives now doing well.

August 16th.—Took off 12 sections. The second crate of sections was never occupied.

22*nd*.—Extracted 22 lbs. from all the combs, and as the bees were getting honey did not feed. It may be of interest to remark that localities only a few miles apart greatly vary in their honey-producing qualities. The competition hives did much better than any of my own moved to Mackworth. The white clover at Oakbrook may account for this. It has been suggested that I have overstocked the other locality, but I cannot think that 30 hives would overstock any district.

BALANCE SHEET.

1882.	*Payments.*	£	*s.*	*d.*
May 20.	First cost (see Diary)	1	10	2
June 15.	Syrup	0	0	4
Aug. 7.	Carpet and dummies	0	2	0
„ 14.	Sugar	0	4	0
„	Use of extractor	0	0	1
1883.				
Feb. 13.	Sugar	0	9	0
May 30.	Foundation and frames	0	6	6
Jnly 11.	Crates and foundation	0	3	0
Aug. 16.	Use of extractor	0	0	7½
„ 29.	Bottles and parchment	0	3	11
		2	19	7½

	Receipts.	£	*s.*	*d.*
1882.	9 sections sold	0	17	0
	1½ lb. extracted	0	2	3
1883.	12 sections .. .. .. (say)	1	1	0
	22 lbs. extracted .. .. (say)	1	13	0
	Value of old stock	2	0	0
	Swarm	0	10	0
		6	3	3

Receipts	£6	3	3	
Outgoings	2	19	7½	
Profit	£3	3	7½	

MR. J. M. HOOKER, SEVENOAKS, KENT.

May 22nd, 1882.—Commenced the competition in an orchard selected by the Treasurer of the Kent County Bee-keepers' Association near Orpington Station. My hive cost 10*s.* 6*d.*; foundation, 3*s.*; 2½ lb. bees, 10*s.*; Green's feeding-bottle, 1*s.*; and sugar for syrup, 6*d.*; total, 1*l.* 5*s.* Put bees into hive and fed them.

25*th*.—Adjusted foundation in frames, fed and left all satisfactory.

June 2nd.—Combs built out regularly, took off feeder.

19*th*.—Took out and inspected all the frames, which were full of brood and honey, and in very healthy condition.

July 21st.—Queen still breeding, but little or no additional honey. Did not think it desirable to put on super this season.

August 26th.—Hive much in same condition as before.

October 5th.—Examined hive, and considered that the bees had enough honey to winter on, left them with all the honey and combs, and with two thicknesses of felt over them.

March 15th, 1883.—Raised corner of quilt, saw that the bees were alive and had plenty of sealed honey at top of frames.

May 15th.—Took out all the frames, and found plenty of brood and honey, and stocks in fit state to super.

22*nd*.—Bees swarmed and went back; extracted 8½ lbs. from 8 frames, cut out queen-cells, and put on crate (Abbott and Green's pattern) of 21 1-lb. sections. Cost of crate and sections, 3*s.*; foundation, 8*d.*

June 7th.—Sections in forward state, frames crowded with bees, and every cell filled with honey or brood.

9*th*.—Took off 13 sections full, and replaced with sections fitted with foundation. Took out dummy and put in another frame with foundation in centre of brood nest.

9*th*.—Found sections nearly filled, put on another crate of 21 sections with foundation.

12*th*.—Took off 6 sections from lower crate and replaced them. Remaining sections in lower crate nearly capped; those in upper crate drawn out and filled with honey, but capping not commenced.

14*th*.—Made an artificial swarm by dividing, moving old hive (No. 1) 3 ft. 6 in. to the left of its former entrance

and place new hive (No. 2) the same distance to the right. Found the queen on frame, which I placed in No. 2, together with 4 more frames and adhering bees, cut out queen-cells, and filled up the hive with 4 more frames with foundation. Put 5 frames, full of foundation, in No. 1, leaving several queen-cells in this to hatch. The 2 crates of sections were put on to No. 2.

16*th*.—Examined hives, and found foundation safely built out in both. Cut out queen-cells in No. 1, leaving only one, nearly 2 inches long, to hatch out. Took 1 section off No. 2, and replaced it with empty one.

21*st*.—Took off 12 sections from No. 2, and replaced them. Found other sections in forward condition. Put crate of 21 sections on No. 1, which was strong, working hard, and collecting honey.

27*th*.—Took off and replaced 21 sections from No. 2.

July 2nd.—Took off and replaced 3 sections from No. 2. Many more nearly completed.

3*rd*.—Took off and replaced 14 sections from No. 2. Examined hive, and finding queen had no space to lay, extracted 13 lbs. of honey from 6 frames, took dummy and put frame, filled with foundation, in centre of brood nest. Examined No. 1. Found eggs laid by young queen and sections in a forward state.

11*th*.—Took off and replaced 3 sections from No. 1.

21*st*.—Took off and replaced 5 sections from No. 1.

24*th*.—Took off and replaced 4 sections from No. 1.

August 9th.—Examined No. 2. Found bees taking down unsealed honey, weather having been unsuitable for them, and the limes and clover over. Took off both crates of sections, from which I extracted 9 lbs. of honey. Credit 2 crates of sections nearly drawn out, 4*s*. each.

25*th*.—Extracted 6 frames from No. 1, and only got 5 lbs. of honey. Took off crate of sections and extracted 5 lbs. of honey from them. Credit crate of sections drawn out, 4*s*.

27*th*.—Made an artificial swarm, taking 4 frames and bees from No. 1, and 2 frames from No. 2. Put new swarm, No. 3, into place of No. 2, and moved No. 2 into new position. Introduced a laying queen in cage into No. 3. Cost of makeshift hive, 4*s*. 6*d*.; queen, 5*s*.

30*th*.—Examined No. 3 and released queen; she was received graciously.

31*st*.—Shook off bees from each stock, and let them run into a skep, and weighed them. Weight of No. 1, bees, 2 lbs. 3 oz.; frames, 12 lbs. No. 2, bees, 3 lbs. 13 oz.; frames, 6 lbs. No. 3, bees, 1 lb.; frames, 5 lbs.

BALANCE SHEET.

1882.	*Payments.*	£	*s*.	*d*.
May 22.	Cost of hive, bees, &c. (see Diary)	1	5	0
1883.				
May 22.	Crate of sections and foundations .	0	3	8
	Use of extractor	0	0	4
	9 jars	0	1	10½
June 9.	13 sections with foundation ..	0	0	11
	One frame and foundation ..	0	0	5½
	Crate of sections and foundation .	0	4	0
„ 14.	Hive and foundation	0	13	6
	Sections and foundation	0	5	6½
	Crate of sections and foundation .	0	3	8
	Use of extractor	0	0	11
Aug. 27.	Makeshift hive	0	4	6
	Ligurian queen	0	3	0
		3	7	4½

1882.	*Receipts.*	£	*s*.	*d*.
June 12.	12 sections, Neighbour	1	4	0
	36 ditto at 1*s*. 9*d*.	3	3	0
	9 ditto at 1*s*. 6*d*.	0	13	6
	25 ditto unsold (say)	1	17	6
	18 lbs. honey extracted	1	7	0
	22½ lbs. ditto unsold (say) ..	1	8	1½
		9	13	1½

	£	*s*.	*d*.
Profit.—Balance in hand	6	5	9
Two stocks hybrids and hives	?	?	?
One stock with Ligurian queen in makeshift hive	?	?	?

MR. G. T. MELBOURNE, GLEBE FARM APIARY, NORTON HEATH, LINCOLNSHIRE.

May 20th, 1882.—Commenced competition in the garden of Mr. J. Dixon with two swarms of bees in a 'Melbourne's Triple Hive.' This hive is arranged, by means of dummies, for three separate stocks, and has entrances in front (facing the south) at the centre, and at the two corners. It takes 26 frames. At the east end were placed 1½ lbs. of bees with Ligurian queen, in the centre 2½ lbs. of bees with black queen. Cost of hive, roof, floor-board, 24 frames, 6 sections, and quilts, 12*s*. 6*d*., crate of 12 sections, 1*s*., 2 lbs. foundation, 5*s*., 4 lbs. bees, 16*s*., 2 oz. super foundation, 4½*d*. Total, 1*l*. 14*s*. 10½*d*.

29*th*.—Hive examined: progressing well.

June 14th.—Added 4 frames, with foundation. Extracted 6 lbs. 14 oz. from 6 frames.

24*th*.—Large number of bees hatched. Added three frames. Extracted 7 lbs. 11 oz. from 8 frames.

July 1st.—Added 6 frames. Extracted 6 lbs. 7 oz. from 5 frames. Moved 1 frame from each stock to west end of hive.

5*th*.—A large party visited the apiary. At this date, at the east end of hive, was the Ligurian stock with 9 frames, all with brood and eggs, and queen in bright and active state. In the centre black stock, with 9 frames with brood, and 1 brood frame with 6 sections and 12 1-lb. sections in super on the top. At west end 2 frames on which queen-cells were being raised. These were cut to give room for the queen-cells.

8*th*.—Moved one queen and combs from east end to new hive, leaving 2 combs at east end of hive, to which queen-cell from west end is to be transferred.

10*th*.—A new hive to hold 3 stocks placed in garden.

Entry made by Rev. H. V. Turner on July 10th, 1882: 'I found Mr. Melbourne's triple hive much increased, being raised from 3 to 4 stocks. This increase has been made by artificial swarming, to prevent a natural swarm. The black stock still very strong, and supers filling nicely. The Ligurian stock has been moved into another hive in order to have room to move queen-cells up from west end of the hive, 7 combs being thus moved. I found two royal cells sealed over, and two cells with grubs in two combs at west end of the hive. In the east end of hive there are now 2 combs left from old Ligurian stock in order to have a queen-cell brought from west end.'

Two stocks were made. The brood and queens from this 'Competition' apiary, with some black bees and brood to make up the stocks, were placed in two hives purchased ready to start the Rev. Canon White's apiary under my care. The whole purchase of bees has been delivered at the following prices:—Two Ligurian queens and brood, 2*l*. 1*s*. 0*d*.

11*th*.—Queen-cell transferred from west end to east end of hive. Two other queen-cells with grubs are moved to two small hives or boxes, one of which I made roughly of common deal before breakfast, so as to take 4 frames of standard size.

17*th*.—Took all sections away in order to extract honey from 5 frames for the last time this season.

27*th*.—Entry by Mr. Henry Yates: 'Saw frame of brood, with newly-hatched queen, exhibited at Norton Show, which was awarded a special prize of 7*s*. 6*d*., returned to the Competition apiary, where I also saw 6 stocks containing either queens or queen-cells. 27 lbs. of honey from this apiary were shown, and its fair share of the first prize for quantity and quality is 3*s*.'

29*th*.—Examined hives; found 3 young queens laying.

August 21st.—Entry by Mr. R. Thomas: 'Saw 6 stocks in Competition apiary containing queens and queen-

cells. A large quantity of brood in hive of Ligurians on 11 frames. Saw 3 queens and stock with queen, which were sold. Saw 6 queen-cells in west end of first hive. All evinced great care and attention.'

September 4th and 21st.—Examined hives. Very little honey being collected. Moved one frame of brood to the black stock, and moved the small hive with 4 frames to the east end of the triple hive each day when the bees were flying.

Sold a Ligurian queen, 6*s.*

October 9th.—Having sold the queen I took combs out and shook off the bees to add to east end stock. Moved a Ligurian queen to my own apiary. One frame with brood and honey was added to the east end stock, and 5 lbs. of syrup given by means of a common pickle-bottle with canvas over to the Ligurian stock. Wrapped them up for the winter after moving 2 combs partly sealed to the other stocks.

Jan. 8th, 1883.—Examined stocks. Found one containing brood and one short of food, so moved one frame containing honey from the black stock.

Feb. 24th.—Opened hives again; found sufficient food for the present.

March 5th.—Looked over stocks again, and gave bottles of syrup to two stocks, which they took very quickly. Put piece of tin with one hole to prevent them taking it so rapidly.

12*th.*—Noticed bees flying and unsettled, and on examination found weak stock had been robbed and had lost its queen. Found that I had trodden on her on the ground, so I closed the entrance and added the few bees I was able to save to the next stock. Two stocks have wintered on five frames each, the remainder on two.

April 27th.—Examined hives. Found all doing well. Found the syrup had run on the quilts, so got some mustard-tin lids and punched a hole through, which answered much better. Kept feeding until May 19th.

May 26th.—Moved two frames of black brood and honey to Ligurian stocks to give them sufficient food. Moved black stock into the middle of triple hive, having sold the triple hive.

June 5th.—Triple hive containing 6 frames worked out, crate of 12 sections, and 6 sections containing honey, sold to Mr. Godfrey for 1*l.* 13*s.*

14*th.*—Examined hive and changed frames from the black stock to the Ligurians so as to make them a stronger stock, and to give them sufficient food.

29*th.*—Two frames with hatching brood left in each end of triple hive. The other six frames, with bees and queen, moved to new hive.

July 2nd.—Ligurian queen from Italy put to the two combs from east end. Nearly all the bees shook off in front of new hive where the old queen was placed.

10*th.*—Delivered to Miss Twidale Ligurian queen and brood sold to her last August, which I had wintered at her request. Placed 12 sections on top of new hive.

20*th.*—Ligurian stock swarmed about 11 o'clock. Caught the queen and caged her, examined the hive and took out three frames containing queen-cells and placed them at the west end of triple hive; then returned the queen and some of the bees to the hive and put the remainder to the three frames with queen-cells. Cut out two queen-cells and took them to my own apiary (not priced).

August 3rd.—Made artificial swarm for Mr. Swift, and sold in hive with four frames, and brood, and honey, for 2*l.* The Rev. E. Bourne was present when this swarm was made, and saw it packed for travelling. He bought the three remaining stocks in triple hive complete for 3*l.* 15*s.* In looking over the black stock found four queen-cells. Moved two to the stock I had taken the swarm from. Put the black queen into a small box that belonged to the apiary. There is plenty of honey in the hive Mr. Bourne purchased for the bees to winter on.

6*th.*—Mr. J. M. Hooker called and saw the apiary in my absence.

13*th.*—Examined hive and found young black queen and Ligurian queen. The old queen, added to two frames of brood in new single-walled hive, 3*s.* 6*d.*

25*th.*—Examined and found ten queen-cells in Ligurian stock. Queen in old hive laying and going on well.

30*th.*—Mr. Godfrey came and valued black stock, 16*s.* 6*d.*, Ligurian, with 9 frames comb and brood, and 12 sections, 1*l.* 17*s.* In his entry in Diary he says, 'Found diary well posted up, accounts carefully kept. The price charged for hives sent out simply cost of labour and material. . . So far as I am able to understand the rules Mr. Melbourne has well fulfilled them.' He also says that he is pleased to find that not only has Dixon the cottager been instructed in bee-keeping, but that numbers of neighbours have been invited to witness the various operations in the apiary, and many have become converts to bee-keeping.

BALANCE SHEET.

1882.	*Payments.*	£	*s.*	*d.*
May 20.	Stocks, &c., see Diary	1	14	10½
July 1.	Foundation and Frames	0	3	3½
„ 3.	Entrance, &c., Sleaford	0	3	0
„ 15.	Hive and Dummies	0	10	0
„ 22.	Entrance, &c., Norton	0	0	9
Aug. 5.	Foundation and Frames	0	2	8½
	Deal Box and Hive	0	1	6
Oct.	5 lbs. Syrup	0	1	8
1883.				
April.	2 lbs. Syrup	0	0	4½
June 29.	New Hive and Supers	0	7	6
July 2.	Ligurian Queen	0	4	0
Aug. 13.	Single-walled Hive	0	3	6
		3	13	2

	Receipts.	£	*s.*	*d.*
June 14.	Black Brood	0	3	0
July 10.	2 Queens and Brood sold to Canon White	2	1	0
„ 17.	27 lbs. Honey extracted	1	7	0
„ 27.	Prizes	0	10	6
Sept.	Queen	0	6	0
1883.				
June 5.	Triple Hive, Mr. Godfrey	1	13	0
July 10.	Queen and Brood, Miss Twidale ..	1	5	0
Aug. 13.	Ligurian Stock, Mr. Swift	2	0	0
	Triple Hive and Stocks	3	15	0
	Value of Stocks left	2	13	6
	Wax, &c.	0	1	0
		15	15	0

REV. F. T. SCOTT, HARTLIP VICARAGE, KENT.

May 21st, 1882.—Commenced the competition with a 6 lb. swarm from my own apiary, which filled a skep, and put them on top of frames of hive in Mr. A. Rylands' garden, in the parish of Hartlip, Kent. Hive 16 in. by 15 in. inside measure, made of 1 in. fir, containing 10 frames, Standard size, furnished with comb foundation. Frames covered with quilt of thin bed-ticking, and another of house-flannel.

24*th.*—Examined hive, 4 of the comb foundations had fallen from weight of the bees. Replaced them at a cost of 5*d.* each. (Note.—Such an accident as this with a straw skep would have been almost irreparable.)

June 3rd.—Swarm making fair progress.

17*th.*—Examined hive. All the combs fairly furnished with honey and brood. Put on crate of 14 1½-lb. sections

furnished with thin foundation. The weather since last examination has been most unfavourable—days windy, nights cold and occasional frosts.

July 14*th*.—No progress made. Some bees in sections, but no work begun.

September 16*th*.—Away from home two months. Found stocks fairly supplied with honey, removed crate of sections which have not been worked out at all.

October 23*rd*.—Examined stocks. Found much honey consumed since last inspection, put on house-flannel, value 6*d*., and removed one outside frame which was honeyless and contained many drone-cells.

Jan. 4*th*, 1883.—Examined stock. Bees and combs in satisfactory condition. Inside top of cover appeared damp for want of ventilation.

February 5*th*.—3 or 4 frames have brood. Queen healthy and vigorous. Sealed honey in 2 or 3 frames.

20*th*.—Made 2 holes in cover, and put perforated zinc over them. Bees very quiet.

April 3*rd*.—Examined hive after a long spell of frosts and snow during the month of March. Find it very short of provisions. Put on Blow's 'Perfection Feeder,' with pint of syrup, made from 2 lbs. of sugar, cost 7*d*.

7*th*.—Refilled feeder, cost 7*d*.

May 5*th*.—Bees strong in number, but stores short. Replaced frame taken out in October, having cut away drone-cells.

17*th*.—Examined hive. Full of bees, and plenty of honey in tops of frames. Replaced crate of 14 1½-lb. sections taken off last year, in same state as when put in June, 1882. Abundance of honey in the cherry and apple orchards which abound in the neighbourhood, also in a large field of turnip-seed full of blossom close by. Nothing seems wanting to the success of the honey harvest but fine sunny weather to enable the industrious labourers to gather it.

31*st*.—Sections fairly advanced.

June 8*th*.—Took off crate of sections, all well filled and sealed except one which had drone brood. The honey was gathered, I believe, from the cherry and apple orchards in the immediate vicinity of the hive.

9*th*.—Put on a crate of 18 1-lb. sections, with small piece of guide-comb in each. The bees were collected in large numbers round the mouth of the hive as if wanting room.

20*th*.—Sections filling fast, but not quite fit to be removed.

24*th*.—As the saying is, 'The Parson's bees swarmed on Sunday.' The alarm was given about 1 o'clock, and I soon found a fine swarm hanging from the branch of an apple-tree in a neighbour's garden. Hived them in a straw hive, and carried them into my garden, and found their weight to be 6 lbs. clear, equal to 30,000 bees. Put them in a 10-framed Hartlip hive, in frames filled with foundation.

25*th*.—Took off crate of sections, as I did not expect bees would now finish after throwing off so large a swarm.

29*th*.—Hives full of bees and honey, so I replaced crate of sections.

July 19*th*.—Took off crate of sections not completely filled. Extracted about 9 lbs. from 4 frames, in 'Little Wonder' slinger. Honey harvest now nearly over.

August 28*th*.—Report of Mr. R. Green, Kent County expert: 'Strong and healthy stock of black bees on 10 frames of comb, containing plenty of sealed honey and pollen, and 6 of them with brood. A fine active queen now laying freely. The bees are bringing in fresh honey now. They are rather infected with the bee-louse (*Braula cæca*), but no doubt the winter will clear them off.'

Receipts.	£	*s*.	*d*.
14 1½-lb. sections	1	11	6
Swarm	1	4	0
18 1-lb. sections partly filled ..	?	?	?
Value of stock	?	?	?
	?	?	?

Mr. T. F. Ward, Church House, Highgate, Middlesex.

May 24*th*, 1882.—Commenced competition with two swarms received from Mr. Abbott, weight, 3¼ lbs. and 2 lbs., which were placed in two hives made out of sugar-boxes, cost 6*d*. each. Total cost of hives, with frames, quilts, and comb-foundation, 3*s*. 2*d*. each.

No. 1 hive, with 7 oz. foundation, 9 frames, 2 dummies and quilt, and 3¼ lbs. of bees. Weight without cover, 17 lbs.

No. 2 hive, with 7 oz. foundation, 10 frames, 1 dummy and quilt, and 2 lbs. of bees. Weight without cover, 17 lbs.

June 16*th*.—Opened both hives. Found the rain had got in. Quilts very wet and mouldy. Changed both, and placed a piece of asphalt on the top.

Aug. 9*th*.—Gave each hive 3 lbs. of syrup.

16*th*.—Do.

Sept. 9*th*.—Do.

Oct. 27*th*.—Placed extra quilts on each hive, reduced the size of entrances, and left them for the winter. One stock much stronger than the other. Both healthy and well found.

April 2*nd*, 1883.—Looked into both hives. Found plenty of food and breeding going on. Observed one stock still the stronger. Gave each hive 2 lbs. of syrup with one hole.

20*th*.—Gave each hive 2 lbs. of syrup.

May 10*th*.—Gave each hive two whole frames of comb foundation to fill up and prevent drone-comb being formed.

June 20*th*.—Put super on No. 2.

29*th*.—Put super on No. 1.

Aug. 8*th*.—Took off supers. Gross weight, 42 lbs., net, 37½ lbs. Extracted from 11 frames 13 lbs. of honey. An accident to the slinger prevented me slinging more. The weather being very wet and cold caused the honey to be thick and very difficult to sling. The work being performed in the open there was much robbing from other stocks. Both hives very strong in numbers, the body boxes being hardly capable of holding the bees when the supers were taken off.

Aug. 9*th*.—Weight of hives without covers, No. 1, 28 lbs., No. 2, 28½ lbs. I deeply regret that I had no means of making two swarms without breaking the rules, having expended the original 2*l*. so nearly that I cannot knock up any temporary hives. The two hives are so strong that the bees absolutely hang out now that the supers are gone.

All operations have been conducted on the let-alone supering principle as far as possible. The lime-blossom season has been wet throughout, had it been otherwise my super honey would have been doubled. My supers (section-crates?) consisted of four strips of ¼-in. stuff put together as a frame. I should not recommend anything of this kind. Necessity alone could invent such. The difficulty of removing it caused much excitement among the bees.

30*th*.—Weighed both hives without the covers. No. 1 weighed 25 lbs., No. 2, 23 lbs., showing a decrease in weight of 8⅓ lbs. This I attribute in part to the destruction of drones, as there are now none left.

31*st*.—Have reason to think I have discovered the reason of the reduction of weight of hives since August 9th. Both hives are made of unpainted soft wood, and on August 8th and 9th it was very wet, so that they ab-

sorbed much wet. On the 30th it was fine and dry, and had been so for three weeks.

BALANCE SHEET.

EXPENDED.	£	s.	d.
2 Hives, Foundation, and 19 Frames, &c. ..	0	6	4
5¼ lbs. of Bees	1	1	0
Foundation	0	1	1
Quilts	0	1	6
Asphalt	0	0	6
Syrup	0	3	10
3 Supers (crates?)	0	1	6
63 Sections	0	3	0
Use of Extractor	0	0	6
	1	19	3

CREDIT.	£	s.	d.
Super Honey, 37½ lbs.	?	?	?
Extracted 13 lbs.	?	?	?
Value of Stocks, increase in weight, stated to be 39¼ lbs. [This does not agree with Diary]	?	?	?
	?	?	?

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

Quarterly meeting held at 105 Jermyn Street on Wednesday, October 17th. Present—Rev. G. Raynor in the chair; Rev. E. Bartrum, Hon. and Rev. H. Bligh, H. Jonas, J. M. Hooker, D. Stewart, W. A. Kirchner (Auditor), W. O'B. Glennie, Treasurer, and the Rev. H. R. Peel, Hon. Secretary. The following representatives of County Associations were also present:—Rev. A. Roberts (Herts), Rev. A. Welch, Mr. Jesse Garratt (Kent), and Mr. F. H. Lemare (Surrey). The minutes of the last quarterly meeting were read and confirmed. The Rev. E. Bartrum reported that he had examined the accounts relating to the Knightsbridge and Bridgewater Shows, and found the deficit incurred was entirely owing to the fact that the Association had received no pecuniary aid from other societies as in former years. The Hon. Secretary reported that each member of the committee had advanced a loan of 10*l.*, and the President 50*l.*, making a total of 150*l.* Resolved unanimously, 'That an appeal be made to the members of the Association to increase their subscription and for donations towards defraying the present deficit.' (A copy of this appeal together with a list of donations already promised to the fund will appear in our next issue.) The Judges appointed to award the prizes in the Economic Apiaries Competition presented their awards and report. The Rev. E. Bartrum moved, 'That the report be received, and that the best thanks of the committee be given to the Judges for their labours in awarding the prizes.' Carried unanimously. Mr. Jesse Garratt reported 'that the Bath and West of England Agricultural Society would hold their Annual Exhibition of 1884 at Maidstone.' Mr. F. H. Lemare also intimated that the Royal Counties Agricultural Show would be held at Guildford. Resolved, 'That the Kent and Surrey Bee-keepers' Associations be empowered to hold exhibitions of bees, hives, honey, &c., at these shows under the auspices of the British Bee-keepers' Association; the Kent and Surrey Associations to take all responsibility of profit and loss, the Central Society undertaking to give grants of medals and to provide Judges.' Mr. Stewart moved, and the Hon. Sec. seconded, 'That the Rev. E. Bartrum, the Hon. and Rev. H. Bligh, and Mr. Jonas be appointed as a finance committee, two to form a quorum.' The next committee meeting was fixed for Wednesday, Nov. 14th.

BERKS BEE-KEEPERS' ASSOCIATION.

This Society keeps moving on, and is doing its best to spread an interest in bee-culture in the county.

On Tuesday, the 25th September, the Annual Harvest Thanksgiving Service and College Garden Show was held at Englefield. After an early celebration of Holy Communion, and at 11 a sermon by the Archdeacon of Buckingham, a dinner was given by R. Benyon, Esq. of Englefield House, to the labourers and harvest men in the Long Gallery there; and, during the afternoon, lecturettes on 'Bees and Bee-keeping from different points of view,' were given by the Rev. V. H. Moyle on the terrace in front of the house, diagrams and appliances being exhibited. He also gave an address afterwards on 'Cottagers' Bee-keeping: as it is, and as it might become,' to the wives and children at tea in the Long Gallery. The rector, C. H. Travers, R.D., is a member of the Berks Association, and encourages the work. Mr. Rhind joined the Society, and R. Benyon, Esq., has become a Vice-President.

On Wednesday, the 26th, the bee-tent was at Winkfield at the Annual Show and Ploughing Competition of the 'Royal Forest Agricultural Association.' Rev. E. Davenport acted as expert, and Rev. V. H. Moyle as lecturer, and opportunities were afforded not only of addressing those in the bee-tent at the various lecturettes, but also a large number of cottagers and their wives and others (after the distribution of the ploughing prizes) on 'Bee-keeping;' and also to the farmers and members of the Royal Forest Agricultural Association after their annual dinner at Brackwell, when 'Bee Culture' was introduced by the Rev. V. H. Moyle to those present as an auxiliary to farming as well as a means of utilising our (in this department) largely wasted resources.

The thanks of the members of the Berks Association are due to Aubrey Elliott, Esq. of Winkfield (one of the Committee), for his securing the bee-tent for this occasion, and also to the Chairman, G. Burgess, Esq., and the Treasurer, H. Hutchinson Browne, Esq., and others, for their kind interest in this increasingly useful work. During the winter lectures will be delivered by the Rev. V. H. Moyle, on 'Bees and Bee-keeping,' in different parts of the county, so as to promote the spread of knowledge on this matter, and also to prepare the way for a honey fair next year in Reading.

A Library is being formed for the use of members of this Association.

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.

The Eighth Annual Exhibition of honey, bees, hives, &c., was held at the Exchange Hall, Grantham, on 19th October.

The liberal amount of 35*l.* was offered in prizes, in addition to the Silver Cup of the Association, and the Silver and Bronze Medal and the Certificate of the British Bee-keepers' Association, also *Langstroth on Bees*, and the current volume of this *Journal*.

The entries were numerous, and the various classes well filled.

Lincolnshire seems pre-eminent as a honey-producing county, the entries amounting to the total of 2 tons, 3 cwt., 2 stones, 12 lbs. By far the greater proportion consisted of extracted honey. Of this, one exhibitor, Mr. Brown, of Swinehead, staged no less than 1429 lbs. in 1-lb. and 2-lb. glass jars. He takes the Silver Cup of the Association, 'for the largest and best exhibition of honey taken without destroying the bees.' This is the second year he has taken the Cup, which will become his property if, as he fully intends, he takes it again next year.

He was followed by Mr. Gilbert, 450 lbs., Mr. Cooley,

364 lbs., Mr. Thorpe, 326 lbs., Mr. Truss, 292 lbs., and Mr. Best, 270 lbs.—these six gentlemen taking the prizes in Class 11, 'for the best and largest exhibition of extracted or run honey in glass jars of 1 and 2-lbs. each.' The Silver Medal of the British Bee-keepers' Association, 'for the best exhibition of super-honey in sections or otherwise,' was awarded to Mr. Tom Sells, for a beautiful dome-shaped glass weighing 56 lbs.; the combs radiating from the centre like the spokes of a wheel, or rather like the spaces between the spokes, being thickened ont at the circumference in an extraordinary manner. This had been worked on a bar-frame hive with ten Association Standard frames. The Bronze Medal was awarded to Mr. Melbourne, and the Certificate to Mr. Henry Yates.

The sections were of good quality, first prizes falling to Mr. Pridmore, for the best 12 1-lb. sections, and to Mr. J. M. Hooker, for the best 12 2-lb. sections. Second prize, 'for the largest and best exhibit of super-honey, the produce of one apiary,' went to Mr. R. Thorpe; 1st not awarded. Mr. Tom Sells took—1st, 'for the best glass super,' over 12 lbs. Mr. Thorpe—2nd, Mr. Melbourne, 3rd. 'For the best glass super' under 12 lbs.: 1st, Mr. Melbourne; 2nd, Mr. Thorpe; 3rd, Mr. Sells. 'For the best super of wood, or wood in combination with glass and straw,' Mr. Yates, 1st; Mr. Jackson, 2nd.

In Class 10, 'for the best glass of extracted or run-honey, not less than 4 lbs., net weight. Quality to be the chief point of excellence,' some very fine honey was exhibited. Mr. T. Sells taking 1st; Mr. J. Lane, 2nd; Mr. J. Yates, 3rd. Highly commended, Miss Deeds, Mr. H. Yates, and Mr. F. Rippon. Commended, Mr. J. R. Truss.

The honey was of very high standard of excellence, an inferior sample being quite the exception. The packing, however, was open to improvement. The appearance of the largest exhibit being greatly marred by the green glass bottles used, and by the corks being left bare instead of neatly covered with paper or waxed. Another exhibit of un-set honey had no corks in the bottles which were simply tied down, and consequently had each one to be wiped on arrival. If good eating is worthy of good drinking good honey is worthy of good packing. *Verb. sap.*

In Class 1, 'for the best specimen of bees other than English,' Mr. Melbourne took, 1st prize; Mr. Pridmore, 2nd; Mr. T. Sells, 3rd. In Class 2, English bees, Mr. R. Thorpe, 1st; Mr. Baldwin, 2nd; Mr. Melbourne, 3rd.

The hive classes were well filled, and in some the judges had a difficulty in according the prizes. Messrs. Abbott, Bros., took 1st, for Observatory hives; Mr. Thorpe, 2nd; Mr. Baldwin, 3rd. In Class 15, for the best and most practical hive, not exceeding 30*s.*, 1st went to Messrs. Edey and Sons, for a well-made twin-hive; 2nd, to a once well-known manufacturer, Mr. James Lee, of Bagshot, who exhibited a straw hive in outer case of wood, with straw dummies and straw cushion: 3rd, Mr. S. J. Baldwin. Class 16, for the best hive not exceeding 15*s.*, 1st was awarded to Messrs. Abbott, for their well-known Copyable hive; 2nd, Mr. Baldwin; 3rd, Mr. Sells. In this class Mr. Lee also showed an excellent straw hive in case, which would have been hard to beat had not the supers required by the schedule been omitted. Class 17, for the best complete hive not exceeding 7*s.*, 1st, Mr. G. Stothard; 2nd, Mr. W. Davies; 3rd, Messrs. Edey and Sons. Class 18, for the best straw hive for supering, 1st, Abbott, Bros.; 2nd, J. Lee; 3rd, T. Sells. Mr. Baldwin took first for best crate of supers. Messrs. Abbott Bros., 1st, for best feeder; Messrs. Edey and Sons, 1st, and Messrs. Abbott Bros., 2nd, for best and cheapest pair of glass jars. For the best crate for conveyance of sections and extracted honey, Mr. Baldwin took 1st, for one shown filled with sections, which were so protected by springs that they would bear a heavy jar without damage; Mr. Melbourne 2nd, for one also with springs.

In the class for the best collection of hives, &c., both Messrs. Abbott Bros. and Mr. S. J. Baldwin exhibited an excellent assortment, difficult to choose from: 1st prize was eventually adjudged to Mr. Baldwin, 2nd to Messrs. Abbott, and 3rd to Mr. Best. Mr. Yates received 1st prize for a wax-extractor, also adapted for a honey-strainer. For the best microscopic slides, also for the best collection of natural objects illustrating the natural history of the honey-bee, Messrs. Abbott Bros. took the prizes; in the latter class, for a complete and interesting collection of bees of all kinds and in all stages preserved in spirit. They also took the prize for the best display of plants.

The whole exhibition was of a most interesting character. It included a large collection of microscopic objects, mostly prepared by the late Mr. John Hunter, kindly lent by Messrs. Hunter and Sands, of Cranbourn Street, London, and exhibited by Dr. Jeans in instrument provided by him and by Mr. Godfrey, jun. It is only necessary to mention the name of Mr. R. R. Godfrey, the highly-esteemed secretary, as organizer in conjunction with his committee, to show that everything which could be done by energy and perseverance to ensure success was done. It is much to be regretted that the miserable weather which prevailed caused the attendance to be but small, necessitating a large loss to the funds of the Association.

GRANTHAM HONEY FAIR.

This annual fair for the sale of honey, which was first established by the Lincolnshire Bee-keepers' Association under the auspices of Mr. R. R. Godfrey in 1877, and has become one of the recognised institutions of the county, was held in the Westgate Hall, Grantham, on Saturday, October 20th, the day following the bee-show reported above. The Exchange Hall being required for the Saturday's Corn Market, the whole of the 5000 lbs. and upwards of honey, together with all the other objects, had to be removed from one hall to the other. The labour and care required to do this after nine o'clock at night, and have all ready in the Westgate Hall for the influx of visitors the next morning, may be readily imagined. But, thanks to Mr. Godfrey and his able coadjutors, all was safely carried out.

The attendance was good, and the greater part of the large quantity of honey exhibited changed hands at prices ranging from 1*s.* to 1*s.* 6*d.* per lb. for comb-honey, and 10*d.* to 1*s.* for extracted. A few choice lots fetched more, and the handsome glass super, for which the silver medal of the B. B. K. A. was awarded to Mr. T. Sells, sold for 5*l.*

Wax was scarce, and fetched from 1*s.* 9*d.* to 2*s.* 3*d.* per lb. Of course the largest contributors to the fair were those gentlemen whose exhibits figured so largely at the show. Of these Mr. Thorpe is to be congratulated upon having disposed of the largest proportion of his stock, owing, perhaps, in some measure to his having engaged a young lady as saleswoman.

The arrangements, under the management of Mr. R. R. Godfrey, were admirable. The proceedings were enlivened by the performances of a band, and all the members of the Committee of the L. B. K. A., assisted by Mr. Hooker, of Sevenoaks, were most energetic in pressing those who, perhaps, came to hear to remain to buy. The example set by Lincolnshire, and found by that Association to be so successful, is one which we hope to see adopted by every county possessing a Bee-keepers' Association. The annual honey fair in each county should in course of time become as regular a thing as a fair for the sale of cheese or any other staple commodity. We trust that during the time that bees are quiet, but bee-keepers are, or should be, on the alert, the various Associations will consider the matter, and next year not let Lincolnshire have the glory all to herself.

SOMERSET BEE-KEEPERS' ASSOCIATION AT YEOVIL AGRICULTURAL SHOW.

The above Association held their first show of honey and hives at Yeovil on Friday, October 12th. The exhibits in all the classes were particularly good, and attracted a very considerable amount of interest during the course of the afternoon. The show was under the same roof with the butter and cheese: what, indeed, could go more appropriately together than butter and honey, to show the fruitfulness of the land? It is confidently hoped that the show will bear fruit next season, and produce a goodly array of new members for the Association. The following is the list of prizes:—

Run Honey.—1. 15*s.*, Hart and Co., Longstock Apiaries, Stockbridge. 2. 10*s.*, Mr. Dunman, jun., Troytown, Dorchester. 3. 5*s.*, Rev. N. W. Greeley, Milborne, St. Andrew, Blandford; 5*s.*, Mr. J. Antell, Puddletown, Dorchester. Extra, 2*s.* 6*d.* for special excellence, Mr. G. Bryant, Spaxton, Bridgewater.

Comb Honey.—1. 15*s.*, Mr. J. Antell, Puddletown; 2. 10*s.*, Mr. Dunman, jun., Troytown. 3. 5*s.*, Hart and Co., Longstock, Stockbridge, this was broken in transit. Judges of honey, Mr. C. Tite and Rev. E. G. Anderson.

Hives under 10*s.* 6*d.*—1. 10*s.* Messrs. Dines and Son, Maldon, Essex. 2. 5*s.*, Mr. Willshere, Semington, Trowbridge.

The Judges, Messrs. Dunman and Antell, had a difficult task in assigning the prizes, the result was satisfactory, and it was a matter of surprise that hives of such excellence could be produced for the prices required to gain a prize. There were several hives of higher price not for competition.

CORK INDUSTRIAL EXHIBITION.

Hives and Appliances.

This exhibition was open from July 6th to October 13th. The County Cork Bee-keepers' Association had a stand devoted to bee appliances. The exhibitors of hives and appliances will be seen by the judges' awards. Mr. J. Crosbie Smith exhibited specimens of various articles, both artificial and natural, connected with bee life; a collection of straw hives, and bar-frame hives made from trade boxes to illustrate 'cheap hives.' Patrick Traynor was in attendance to explain improved bee-keeping, and Mr. Smith was also present frequently. A very great interest was shown by numbers looking for information. Since the Cork Association was formed last year modern bee-keeping has made great strides here, and that too amongst a class that it was not expected would have done so so soon, many of the farming classes having taken up the new ideas, and were eager to learn. By means of this exhibition the Cork Association have been able to reach numbers that they could not possibly have done otherwise.

'Judges' Report and Awards.

'No. 363. W. W. Young, Perth.—The Eclectic hive deserves special commendation on account of arrangements for supering, and novelty of arrangements of ends of dummies for section-frames—preventing bees getting behind dummies, and lost. The other hives shown, extractors, and sundry appliances, are all well and carefully made. Awarded a medal for hives and appliances.

'No. 370. John J. Smyth, Rathcourcy, Co. Cork.—Bar-frame hives lined with straw and straw dummies. Think it would give the bees a great deal of useless labour in propolising, and also that the dummy is not effective, as the bees could easily pass between side of hive and its ends. Lighting boards and entrances bad. Do not approve of the principle (Giotto or close-ended), and the frames are ill-fitting.

'No. 364. W. Johnson, Frankfield, Cork.—Measurements wrong, and imperfect in principle and general detail.

'No. 367. H. Craig, Rock Cottage, Passage West, Co. Cork.—The best-made hive shown, of correct construction, displaying good workmanship and ingenuity, the dummy (spring sides) or division board specially noticed. This hive was made under the advice and guidance of Mr. J. Crosbie Smith, and is on the principle of C. N. Abbott's Combination or one-storey hive, the body of hive being fitted with ten frames and frames of sections. Awarded a first-class certificate of merit.

'No. 366. A. Davis, Limerick.—An A-1 hive in every way as regards finish, workmanship, and completeness. Is on Abbott's Combination principle. A little more room for moving dummy would be an advantage when hive is full of frames; the same applies to all hives examined except H. Craig's exhibit of Abbott's pattern, which is the best, giving plenty of room for frames of sections and manipulations. Awarded a medal.

'No. 365. W. R. Orr, Strabane, Co. Tyrone.—The hive at 30*s.* 6*d.* cannot be praised enough for completeness, finish, and new ideas. The centre part (middle-piece), and arrangements for supporting roof when hive is opened deserve special notice. The lighting board is grooved, and arrangement of moveable floor-board is very good, also the additional inclined moveable lighting board. The packing for winter with feeder place in centre is also very good. The hive at 13*s.* 6*d.*, without crate of sections, is a wonder at the price. The 'Apprentice Hive' of straw, with a section, crate, cover, and floor-board, at 10*s.* 6*d.*, is specially good and cheap. Awarded a medal.

'No. 359. Edmondson Bros., 10 Dame Street, Dublin.—The Cottagers' Hive, 20*s.*; the Eyre Court, 32*s.* 6*d.*; the Premier, 40*s.*, are all well and substantially made. This firm spares neither timber, time, nor pains, in turning out a good article, there being a striking contrast in stuff worked up in these hives compared with the flimsy make of some other hives exhibited. The prices appear moderate when the lasting is taken into consideration. The summer and winter arrangements and general details are complete, and the standard measurements are strictly adhered to. Awarded a medal for hives.

'No. 368. J. R. W. Hole, Hereford.—This maker exhibits well-made hives, with all modern improvements. Arrangements of moveable floor-board very good, and extremely simple. Awarded a high commendation.

'No. 362. Wentworth Taylor, Tinahely, Co. Wicklow. These hives show imperfect and careless construction, both in hives and frames; the frames not hanging true, and the floor-boards shrunk, the timber not being thoroughly seasoned. Entrance when contracted is too large for safe wintering.

'No. 357. J. Crosbie Smith, Passage West, Cork.—This exhibitor is a practical bee-keeper and amateur hive maker, the hives exhibited illustrating fully how excellent a home for bees can be made at a very little outlay. For instance, the two hives shown are made out of an Assam tea-chest and an American tinned meat case, quilted with tea-jacketing mats for winter, and with carpet for summer, the roofs covered with paper, and oiled and painted, and all made at a cost of 4*s.* 6*d.* each. These hives are to be preferred to some shown at five and ten times the price. The arrangements for dead-air space and packing of sides are simply perfect, and everything that a practical knowledge of bee-keeping can alone give is carried out fully. Mr. Smith deserves great credit for showing cottagers that they may have a first-rate bar-frame hive correct in principle and detail at a very cheap rate. The dummies are made close-fitting with cloth nailed all round the edges. Awarded a first-class certificate of merit.

'No. 358. T. Edey and Sons, St. Neot's, Hunts.—Hives, double walled, fitted with broad-shouldered frames, moveable grooved floor-boards, crates of sections, &c.,

all well made in all parts. Awarded a first-class certificate of merit.

'No. 360. F. H. Jones, Waterford.—Hives, good in principle, but that at 14*s.*, a single-walled hive, too lightly made for practical work. That at 24*s.*, on Cook's doubling plan, is stronger than the first mentioned, but upper portions too light. Lighting boards good. Price too high.

'Prices where given were taken into consideration in making the awards.

'(Signed) J. C. Canacan, Member of Committee of Irish B.K.A., 20 Gardiner's Place, Dublin.
G. F. Townly, Member of Co. Cork B.K.A., Graybrook, Waterfall, Co. Cork.'

Communicated by J. Crosbie Smith, Hon. Secretary, Co. Cork Bee-keepers' Association.

THE IRISH BEE-KEEPERS' ASSOCIATION.

This Association held a show of honey and hives, in connexion with the Royal Dublin Society's Dairy Show, at Ball's Bridge, Dublin, on Wednesday, 24th October, and two following days. The exhibits of honey were very limited in number owing to the wet season, but notwithstanding this, the sections shown by the Rev. J. M. Aldridge, of Galway, and Captain W. A. Riall, of Clonmel, were well filled and finished, taking first and second prizes, respectively, for the best crate of twenty-one 1-lb. sections. The exhibits of extracted honey were rather more numerous, there being separate classes for clover and heather honey. The first prize for the latter was taken by Major Blake, of Co. Galway, and second by the Rev. H. J. Sibthorp. The clover or light honey not being represented by any of sufficiently light colour, no prize was awarded. In the class for the best frame-hive, price not to exceed 2*l.* 2*s.*, the only novelty worthy of notice was the use of Dr. Pine's metal ends, which were also used in other hives exhibited by Messrs. Edmondson Brothers, the winners of the first prize in this class. The hive which took second prize in this class, exhibited by Mr. Lonsdale, of Lurgan, was a marvel of cheapness, being sold complete with legs, moveable floor-board, super crate, and excluder zinc, for 16*s.* In the class for the best hive of a substantial character for general use in an apiary Messrs. Edmondson's 'Lismany Hive' was successful in securing the first place. The inside dimensions of this hive are 34 inches by 14½ inches by 8¾ inches; it is arranged to work sections at the sides of the brood-nest, and has an excluder at each side, as well as the usual exclnder and section crate for use on the top of the hive. It is fitted with three entrances, one to the brood-nest, and one to each side where the sections are being filled. In the class for the best extractor the prize was taken by the 'Derbyshire,' shown by Messrs. Edmondson, which takes four combs at a time.

Driving competition was limited to persons residing in Ireland. Mr. P. Traynor took first prize, and W. Lonsdale second.

The judges were the Hon. R. Bellew, Jenkinstown Park, Kilkenny, and R. T. Croasdaile, Esq., Wingfield, Shinrone.

A conference of the members of the Irish Bee-keepers' Association was held during the show, and it was unanimonsly recommended that sections exhibited in the class for 1-lb. sections should in future measure either 4¼ in. by 4¼ in., or 4⅜ in. by 4 in., and that other sizes be disqualified.

CALEDONIAN APIARIAN SOCIETY.

Minutes of meeting held on Wednesday, 24th October, in M'Innes's Temperance Hotel, 12 Hutcheson Street, Glasgow. Present—Messrs. Sword, Cameron, Young, Anderson, Hutcheson, Johnstone, M'Nally, and Bennett. On the motion of Mr. Sword, Mr. Anderson (the veteran Ayrshire bee-keeper) was called to the chair. The Secretary read the circular calling the meeting, and letters of apology from Mr. Paterson, Struan, Mr. Thomson, Dalbeattie, &c. The minutes of last meeting were read and approved of. The Secretary read the financial statement, and drew attention to the loss sustained by the Inverness Show, which amounted to 6*l.* 1*s.* 2*d.* He said that, considering the weather, and the extraordinary bad season, we should be thankful it was not three times greater. At the same time we have cause to be grateful that we can bear the loss, and he said that the Society was never in a more flourishing condition than at present, and we look forward to the Edinburgh Show next season being better than any we have had before. We may fairly say that we have members from the extreme north to the extreme south of Scotland, embracing almost every county between Sutherlandshire and Wigtonshire. The Prize Schedule for the Edinburgh Show was gone into and minutely revised. Mr. Anderson said, as it was their tenth Show, and that in the fine city of Edinburgh, they should make the Prize Schedule a liberal one, so as to induce gentlemen to bring forward exhibits not only from all parts of Scotland, but from England and Ireland; and if their American friends (whom he lately visited) thought nothing of going 1200 miles to a Convention (as the late one held at Toronto showed, where his friends, Judge Andrews from Texas, Prof. A. J. Cook from Michigan, and C. F. Muth from Ohio, were present), surely they ought to have a full representative meeting of bee-keepers from all parts of Britain, if not even some from America, at the Edinburgh Show. The Secretary was instructed to send proof-sheets of the Prize Schedule to the members of committee so as to have the schedule ready for printing by January. Mr. John A. Harvie-Brown, F.R.S.E., F.Z.S., M.B.O.W., Dunipace House, Larbert, was elected vice-president. The following were elected members of committee—Angus Cameron, John D. Hutcheson, James Johnstone, W. Sword, James Anderson, Ebenezer M'Nally, David Woods, and W. W. Young. On the motion of Mr. Cameron, seconded by Mr. Hutcheson, a vote of thanks awarded to the chairman brought the meeting to a close.

Foreign.

SWITZERLAND.

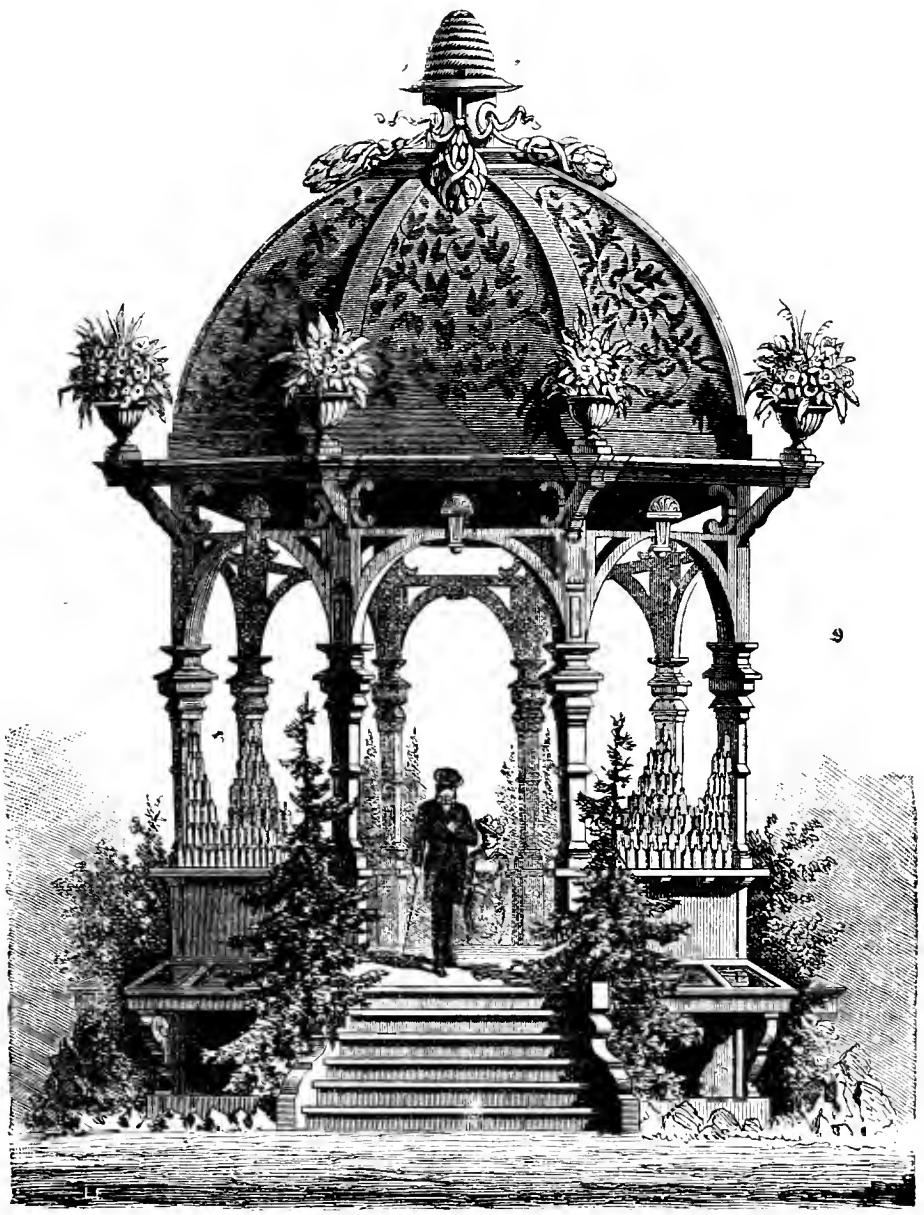
Commenting upon a communication sent to the *Bulletin d'Apiculture* by Mr. Ch. Dadant, regarding the beneficial effect which a general adaptation of larger hives than those now mostly in use would have upon the breed of bees, the editor expresses himself in the following terms:—'We call the particular attention of our colleagues to an article to be found elsewhere, headed, "The Influence of Large Hives," &c. In the course of the visits we have made to sundry apiaries this summer, we were, to our regret, compelled to convince ourselves of the fact that the majority of our bee-keepers are unconscious of the necessity which exists for adopting larger hives if anything like good yields of honey are expected in this country. Yet it would seem as though the *Bulletin* were preaching in a desert, or that no notice whatever is being taken in this respect. It is, nevertheless, an admitted fact that only those keeping their bees in roomy hives can show substantial results as to quantity of honey gathered. Since we make up our minds to keep bees at all, why (asks the Editor) not do so in the manner best calculated to compensate us for our trouble? It is certainly not with the small skep and its small supers, or with the small moveable frame-hive, that we can expect to see a strong colony developing itself to its fullest extent, as in them room is wanting for both bees and honey.

'In the neighbourhoods of Geneva, Cornières, Payerne, and Nyon, there have been instances this year in which colonies have filled hives measuring from 100 to 120

litres, all told. Those who are satisfied with small hives know not what a fully developed stock of bees really represents, even though they kept them for thirty years. Let them study carefully the arguments put forth by our correspondent, and ask themselves whether, while restricting breeding, they are not indirectly jeopardising the development of the physical qualities of their bees as well. We know that the patterns of hives which we, in conjunction with other well-known bee-keepers of these districts, advocate, are large, and that in certain other countries, such as England and the United States, good results are obtained with smaller ones, but then in those countries, generally speaking, the yield lasts longer than over here. They, moreover, aim almost exclusively to the production of honey in sections, a mode of culture which requires the forcing of the bees into supers whilst the body-box is expected to hold only brood. But such a system of bee-keeping requires a high degree of ability. Here, on the other hand,' continues the writer, 'the main honey glut lasts, upon an average, only about two weeks or twenty days, often even less, hence the absolute necessity of having enormous colonies in readiness the moment the honey comes in. Wherever this plan is not acted upon, it happens, what we have witnessed in many instances this year, viz., whereas a few apiarians using hives of large dimensions have taken an exceptionally large quantity of honey, the majority of the other sect declare that the season has been one of the worst.'

HONEY PAVILION AT THE ZURICH EXHIBITION.

Through the kindness of our Swiss contemporaries we are enabled to reproduce in this number an engraving from the *Journal de l'Exposition*, representing the Honey Pavilion at the Zurich Exhibition. The funds for the purchase of the structure have been raised by voluntary subscriptions among Swiss bee-keepers and their friends, and the Pavilion has been erected in the centre of the bee section. In the interior of the structure a large collection of honey in pots is to be seen, representing about 300 kinds from various districts, whilst the exterior is fitted up with a series of glass cases containing specimens of bee flora and a large assortment of objects all more or less connected with bees and their culture.



THE EAST.

(Translated from the 'Bulletin de la Société d'Apiculture de la Gironde,' No. 10.)

We have it on the authority of a well-founded adage that every trade has its own difficulties, and ours is certainly not an exception to that rule; for to the numerous drawbacks and enemies against which we have already to contend, another of no small magnitude has lately

been added, much to the detriment of our importation of Eastern queens into Europe. By this we mean the cholera, which, this summer, has been raging in Egypt, and the subsequent sanitary regulations which followed the epidemic. The consequence was that our unfortunate queens, which had to be sent *viâ* Alexandria, were detained in quarantine either at Brindisi on the Italian coast or at Trieste. To bees such a detention on their journey means a longer privation of fresh air and greater inconvenience from heat, thus adding more uncertainties to those which already surround this kind of enterprise.

We have, besides, to neutralise the effects of a considerable number of other enemies, more or less troublesome in Europe, the worst species of which are,

1st. The hornet or moth, *Vespa crabo*. These do not appear in large numbers before the beginning of June; but where care of destroying their queens, which alone get through the winter, has been taken, much trouble and annoyance is saved in the course of the summer. These queens begin to fly about in March, build their nest and commence laying eggs, which hatch out at the end of six days. Generally speaking, the new brood take to their wings a month after the eggs were laid. At first, however, the breeding is slow, and consequently their annoyance hardly perceptible until June, when their presence becomes obnoxious. We keep them down by searching about for nests in the daytime, marking the spot, and then destroying them in the night, besides, of course, keeping a sharp eye upon them round the hives. Still, there are seasons when all these precautions do not suffice. For instance, at our apiary at Savon in Palestine, their number was so great that serious losses would have ensued had we not taken our hives into enclosed rooms until this enemy began to dwindle away.

2nd. The lizard, *Stellio vulgaris*, called 'Hardône' by the Arabs, comes next in order. Although less dangerous than the *Vespa crabo*, it is yet a ferocious enemy. We have seen these lizards attacking a stock in troops of about fifty each. The best means of avoiding their ravages is to remove the hives about 400 yards from any stone wall built without lime or mortar. Although very quick in their movements, and able to run very rapidly along walls, they are easily caught on sand. Fortunately they only infest certain localities, and we are less troubled with them here in the Mount Lebanon apiary than at Savon. On an average this insect measures about fifteen centimetres from its nose to the point where its tail starts from, the latter being sometimes another 10 to 15 centimetres long. According to the German naturalist, Erhard, these lizards are very numerous in the My-Ronos Island, in the Cyclades of the Greek Archipelago, where they have completely exterminated apiculture.

3rd. *Merops apiaster* belongs to the second class of birds, and is very destructive, but being one of the migratory order, his ravages last only the few days, or at the utmost the three or four weeks he remains with us. This bird is probably known in France as well. His colours are very vivid, being of a light green intermixed with a purple and blue shade on his back, whereas underneath is white throughout. He has, however, a black stripe which, starting from his bill, becomes lost in the purple and green on his back. These can be caught by smearing the small branches of bushes near the apiary with a kind of glue, specially prepared for this purpose. It is, however, when they are on their wings that they delight in catching bees.

4th. The wax-moth, *Galleria mellonella, cereana, et alvearia*, is also one of those enemies which greatly interfere with the bee-keeper of these districts, particularly among the natives who still keep their bees in the old-fashioned hives. Many a stock of bees is destroyed annually by these pests, but they have not had the best of us since we introduced the moveable-frame hive into our apiaries.

5th. Last, but not least of our troubles, is the death's head moth, *Acherontia atropos*. These are as large as bats, for which we had in fact mistaken them when we first saw a few fluttering about the apiaries in the night time. As is well known, this moth bears on his thorax a well-defined impression of the idea which his name conveys, and is one of the largest of his kind. He emits a shriek similar to that of a mouse, although not quite so loud. We have found large numbers of these insects in our Bethlehem apiary; in some instances as many as twelve have been detected in one hive. His admission is facilitated by the size of the entrances, which, in the majority of cases, is rather large. Once admitted, he at once proceeds to the eating up of the honey, and it is wonderful to see what quantity he can get through in no time: but, on the other hand, it is evident that not unfrequently he has to sacrifice his own life in the bargain.

Of course there are other minor enemies, such as mice, spiders, scorpions, and even certain birds, such as the sparrow, but the bee-keeper's terror is embodied in the five individuals we have above described. Fortunately they do not come at the same time, or even at the same season, so that measures for repulsing them can be adopted in turns.—P'H. J. Baldensperger, *Bee-keeper at Jerusalem, Mount Lebanon Apiary, Beyrout*.

AMERICA.

One of the most interesting incidents in connexion with the North American Bee-keepers' Convention at Toronto was the presentation to Mr. Langstroth of a purse of money. Mr. Jacob Spence, secretary of the Ontario Bee-keepers' Association, came forward and read an address of the Association expressive of the high appreciation of the members of the Association of Mr. Langstroth's self-sacrificing labours in the interest of bee-culture. Accompanying the address was a purse of money.

Mr. Langstroth spoke briefly and with feeling in reply. He said he would be sorry that anybody should be urged to subscribe towards a fund for his benefit, but he would accept their kind present in the same spirit in which it was given and thank them for it. He referred to the life-long illness under which he had suffered at times, resulting when the attacks came in his being utterly unable to do anything. He had been obliged to give up the ministry in which he was much interested; he had been obliged also to refuse to accept positions as a teacher, for why should a man enter upon a race when he knows very well that he would almost surely fall prostrate upon the course? They had seen him manifest some interest in bees, yet, strange as it might seem, when these attacks were on he loathed the idea of bees and everything connected with them. He used to say, and he almost believed it, that the sight of the letter 'B' at that time would annoy him very much. He expressed himself as deeply touched with the kindness with which he had been received. He dwelt upon the wonderful habits of the bee as a proof of the wisdom and goodness of the Creator, and urged all bee-keepers to see in their pets, not only the mere bees, but the working of the Almighty's will.

Professor Cook said when he read *Langstroth on the Honey Bee*, he felt that the mind which dictated those words had no deceit or double dealings in it. In having Mr. Langstroth with them they had had the privilege of looking into the face of an honest man, and a great privilege they must all esteem it to be. He was impressed with what Mr. Langstroth had said, and, believing all felt as he did, asked them to join in singing the Doxology.

The Doxology was sung with fervour, probably for the first time in the Council Chamber, and after the benediction by Rev. Mr. Langstroth, the meeting adjourned.

Correspondence.

**** All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to 'The Editor of the "British Bee Journal," c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.'*

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of September 1883, amounted to 972*l.*

[From a private return sent by the Principal of the Statistical office H. M. Customs, to E. H. Bellairs, Christchurch.]

WINTER PASSAGES, &c.

As some of your correspondents find a difficulty in cutting winter passages, I would suggest that an apple-corer will greatly facilitate the operation. For winter packing a *brown paper* bag, of the size of a frame, filled with hay or other material, is admirably warm.

In the July No. of the *Bee Journal*, a paragraph was inserted referring to the number of florets of clover necessary to be sucked to produce one pound of honey. May I ask whether this first appeared in the columns of the *Bee Journal* or was copied from a contemporary? My reason for thus troubling you is, that the question was asked in a public examination on July 12th, and if the question was in print previously I should be very glad to know.—A. G. Radcliffe, *Fonthill, Tisbury.*

[The paragraph in question is one which, at the instance of correspondents and for the information of our new subscribers, we give insertion to from time to time. Our correspondent will find the same paragraph in Vol. VII. p. 188, under the heading, 'Lengthened Sweetness Long Drawn Out;' and if he will further refer to Vol. VI., p. 166, he will find the paragraph as a portion of a paper which we extracted *in extenso* from the *Chemical News*. The paper is entitled, 'The Amounts of Sugar contained in the Nectar of Various Flowers,' by Alex. S. Wilson, M.A., B.Sc., Glasgow University. We might deduce from the article that Mr. Wilson was the originator of the calculations, but we have reason to believe that they emanated from the researches of either a French or a German chemist (see Müller on the 'Fertilisation of Plants by Insects.')]

BEE-KEEPING IN GUERNSEY.

There is a curious notion existing in the island of Guernsey concerning the honey-bee which perhaps may interest your readers. The climate is so mild and genial that flowers grow out-of-doors during the greater part of the year. This has led the inhabitants to believe that Guernsey bees obtain honey all the year round, and never store any in summer for winter consumption, thus accounting for their want of success in bee-farming. This year I took from one bar-frame hive 44 lbs., in 2-pound sections, of the most perfect honey and of excellent flavour; I also extracted over 5 lbs., making a total of 50 lbs. The brood chambers contained 13 frames all full of honey, averaging 2½ lbs. This is the first super honey ever obtained in the island. I also took 27 lbs. from a weak hive in the neighbouring island of Sark.

I might add another notion that obtains credit in this island, especially among the immigrants, and those who are responsible for the development of the intellects of the rising generation; namely, that owing to the injurious effects of this relaxing climate on the brain, and the degenerate condition of the inhabitants, education meets with but indifferent success.

Query.—May it not be as with the bees so with the boys and girls?—E. Le P.

BEE-KEEPING IN THE ISLE OF MAN.

I have read with interest your article in the 15th ult. on 'Bee-culture in the Isle of Man,' by G. Drinkwater, Esq., and quite agree with him, that as a rule it is treated in the most primitive manner possible. This is a pity, as I believe it is owing to the entire ignorance of those who have bees, that there is any other kind of hive in existence but the old-fashioned straw skep, and that the only way of taking the honey is by smothering the bees. Mr. D. proposes a remedy for this state of things, which, I have no doubt, would be effectual if a person could be found that would undertake the duty. But I would suggest another, and that is, a moderate circulation of the *British Bee Journal* throughout the bee-keepers in the island. At present I lend my Journal to two bee-keepers, and they are delighted with it, and I have no doubt, will become subscribers, and in the future go in for modern bee-keeping with bar-frame hives.

I have a Rusbridge wood hive, for which I paid two guineas, and propose showing it at our next agricultural show, and at the same time offering a prize for honey in glass, wood, and straw supers: no doubt Mr. D. will think this a step in the right direction. If honey could be brought into the Douglas market in July or August in 1 or 2-lb. sections, when the town is full of visitors, I make bold to state quantity would be no object to most family grocers, and that at a good price.

Possibly, now that this interesting subject is taken up by a gentleman of Mr. Drinkwater's influence in the island, who, I presume, is the son of his honour Sir W. L. Drinkwater, H.M. Senior Judge, a reform in an industry may be anticipated of untold benefit to our agricultural classes, and in the future bee-culture carried on on the humane and profitable principle.—James Moore, *Victoria Street, Isle of Man.*

SIMMINS' FEEDER.

Permit me, through the medium of the *Journal*, to tell bee-keepers, who have not tried feeders *à la* Simmins, (as described in *Journal* of May 1st, p. 13) of their complete success. They are at once the most economical and cleanly I have ever tried. But what I wish more particularly to say is, that everyone can make for himself the feeder, by using small tin biscuit-boxes such as Huntly and Palmers send out lemon and ginger wafers in. They are 8 in. × 4 in. × 2 ins., and mounting them on a ⅜-in. staging formed of four pieces of ½-in. stuff, planed down to ⅜ on one side; and with a piece of glass for cover, or using their own lids, they are complete.—W. Walker, Jun., *Welcombe, N. Devon.*

FUEL FOR SMOKERS.

I have tried almost everything in my smoker (Bingham's at 2*s.* 9*d.*), but have found nothing that will emit so much smoke and keep lighted so long as a piece of well-worn sacking cut into strips, and rolled up not too tightly. One of these rolls kept alive the other evening for an hour and a half. This fuel is very cheap and easily obtainable, and I am sure that anyone who tries it will find it most satisfactory.—J. J. Elder.

SYRUP-MAKING.

Perhaps my experience in syrup-making may be of use to 'C. R. S., South Cornwall.' It is varied, though rather limited, being all gained in the past season. I think I may say that after many failures I have at last found out the secret of success with both Demerara and loaf sugar. I particularise these two kinds, as I find they require very different treatment to command success. This treatment I will try and explain.

I commenced with loaf sugar, using 5 lbs. to the

quart of water; this I put in a copper saucepan, and after placing it on the fire stirred continually till it had boiled for about ten minutes: I then removed it and added vinegar at the rate of a tablespoonful to the above-mentioned quantity of the other ingredients. I found this crystallised slightly, enough to dissatisfy me, so I kept on with my experiments, and at last found that I could make a good syrup with the above ingredients by not boiling more than half a minute and not stirring at all after the first signs of boiling, except when adding vinegar after lifting off the fire.

My next experiments were with Demerara sugar, and in carrying out the above programme, which succeeded so well with the loaf, I had many disastrous failures, more than half my sugar crystallising. I was, however, determined not to be beaten, and I have at last succeeded in making a syrup that does not crystallise in the slightest degree, and which is to my taste far superior to that made from loaf sugar. In this case I use 6 lbs. of sugar to the quart of water, and I boil it rapidly without stirring for half an hour instead of half a minute, and add vinegar as mentioned for the loaf sugar.

I am bound to say that I do not find, as far as my observation goes, that the bees like this latter syrup any better than they do the former, but take them equally readily. A friend of mine thinks his bees like loaf sugar syrup best.

I must strongly advise that all syrup be kept air-tight until cool, this I manage by tying the brown-paper bag the sugar is sent in over the saucepan.—Cornubia, *North Cornwall.*

THE SMOKER.

This season is my third at bee-keeping. I used to be very much bothered in manipulations by my smoker going out, &c. My smoker is an Abbott's Bingham. I at last found out that rotten wood, dried, broken into small bits, did exceedingly well if dropped in upon a red-hot coal. I keep a cigar box constantly replenished with bits of rotten wood well dried, and this I take with me in manipulation. Next to rotten wood I find brown paper best; but it must not be brittle, 'doughy' paper, such as sugars are wrapped in. It should be, when torn, woolly or thready at the torn edges. And it should, before insertion into the smoker, be doubled volute fashion: this gives the fire a chance to burn.

In moving the frames, I take the quilt partly off at the back of the hive, pull back, say, two of the frames, and keep them covered with a cloth until I loosen and examine the next, and so on, bringing my cloth over each frame in turn. I find this keeps the bees down, saves my smoke, time, and fingers. I never have the whole of the tops of the frames uncovered at once, except when putting on supers.

I quite agree with your remarks in a recent number about bee-veil. It is all very well preaching against it; but one has to learn by degrees. I started with veil and gloves, then discarded the gloves, and finally the veil; but I still find the veil useful and necessary at times. For instance, when opening a hive on a dull day, or when the bees are getting no honey; in sunny weather, when honey is plentiful, I can easily manage without the veil.—W. Berrill.

CANADIAN BALSAMS.

On this subject I may say that I planted twenty plants, 2 ins. high, at the end of May, when they came in flower for a long time. I was disappointed to see nothing but humble-bees on them. This continued as long as such pasturage as borage was plentiful; but now I am rejoiced to say my bees swarm on it. At 9 a.m. this morning, 20th October, my bees were returning to their hives perfectly *white* with it; and this was entirely voluntary on their part, *i.e.*, they are not being stimulated, for I ceased feeding in the middle of September. This I think helps to show the great value of these balsams for autumn pasturage; there is nothing else left.—R. E. C., *Staffordshire.*

CANADA BALSAMS AND WILD BEES.

Like many of your correspondents I planted a lot of these, which are still blooming. From the time the first blossom opened till the *end of September* they were alive from early morning till dusk with *every variety of wild bees*, but never one of my own; then a change took place, few *wild* ones visited them, and since October 1st hive-bees have worked hard at them all day long, even in dull damp weather, coming out from the flowers as white as millers, and, I *hope*, with full honey bags.—W. E. Burkitt.

[We have received several other communications bearing similar testimony to the value of Canada balsams. Some of our correspondents have displayed some degree of impatience as to their tardy appreciation by the bees. In our introduction of these plants to the notice of bee-keepers it was said, 'Its value is greatly enhanced by the lateness of the season at which it comes into flower, August and September, for by that time most of the hives have been relieved of their surplus stock of honey, and its flowers stand the bees in good stead by affording them, as it were, a last chance of the season of replenishing the empty cells with a fresh supply of natural food for the winter months, and thereby obviating the necessity in many cases—though not in all—of much artificial feeding.' We think that the balsams are now fairly proving the truth of the above description.]

A LADY BEE-KEEPER'S REPORT OF THE SEASON.

I am glad to say I have found bee-keeping profitable, besides being most interesting, but I am greatly indebted to you and many bee-keepers for all the kind help and advice I have always received.

This has been a good season with me, for I had my stocks *strong* in time to work early, but very little honey was stored after June. If July had been fine my harvest would have been very large. I have taken 900 lbs. of honey, and my stocks are all in capital order for wintering My best stock yielded 78 lbs.—Mary L. Gayton, *Much Hadham.*

ACETIC ACID.

THE EXPERIENCES OF A 'SCIENTIFIC' BEE-KEEPER.

In your laudable efforts to promote bee-keeping, you very properly teach us to do things in a scientific way; consequently you recommend us to use acetic acid in syrup instead of vinegar, on reading which it occurred to me that the experiences of a scientific friend of mine would be of interest to your readers. He is one of my oldest bee-keeping acquaintances, for whom I entertain the greatest respect; and he is not only a very practical bee-keeper, but prides himself on being a chemist, as anyone may soon discover that may chance to pay him a visit, and see his rows of bottles and jars with their Latin inscriptions. It was his practice to call in his youthful son, to act as small boy when he had occasion to attempt some experiment in chemistry; and having had his assistance on several occasions to prepare the syrup for the bees, he thought on a particular occasion he might venture to entrust him to make the syrup without the aid of the paternal supervision. So giving minute instructions how to proceed, and what quantities to use, and when and how to add the acetic acid,—for the idea of such a barbarism as vinegar was quite repulsive to such a scientific mind,—he left the matter in his hands.

But assisting in chemistry was one thing, and making bee-food unaided in play-hours, was quite another; so the lad having mixed the sugar and water to his satisfaction, at once proceeded to add the acid; but unfortunately for all parties concerned, the bottles neatly arranged on the shelf were so alike, and acids of whatever kind were all acids to the lad, so into the saucepan goes a quantity 'by guess' either of nitric or hydrochloric, it was impossible afterwards by questioning clearly to ascertain which. The syrup set on one side to cool and duly poured into the feeders and placed over the bees.

But here comes the rub, the feeders named 'Perfection' by their inventor are partly of zinc; the acid acts on this metal and fills the bottles with gas that at once proceeds to eject the 'food' amongst the bees faster than necessary for their comfort; not content with this, the 'murderous' stuff eats the zinc covers entirely away, and, still not satisfied with this metallic triumph, consumes the bodies of the poor bees.

The dismay on this discovery by my friend I may leave your readers to imagine better than I can describe. How he reviled the inventor of such 'abominable' feeders and the judges that awarded them prizes, I will not tell you; and the small boy. . . . Ah well! our friend got another lot of bees, started afresh, and is now a more happy if not more scientific bee-keeper.—AMATEUR EXPERT.

[MORAL.—Don't trust 'small boys' with the making of bee-food.]

Echoes from the Hives.

Hunts, Somersham.—We have had tolerably fine weather during the present month. The average night temperature has been 42°·5; the lowest temperature (36°) was shown on the night of 20th and 21st instant. The mid-day temperature of the month, in the shade, has averaged 54°·6; the highest temperature (60°) was shown on 15th and 16th instant, and the lowest (49°) on the 22nd instant. I assisted a friend on Saturday last to remove several stocks of bees he had bought near Ramsey, and of this year's swarms twenty per cent were not worth buying, some having filled only about a quarter of their hive with comb. The swarms were put into any old box which came to hand, one a large tea-chest, with about six cubic feet of space inside, contained bees, comb and honey, weighing about 5 lbs. The stocks in straw skeps were very heavy, seven weighing about two stone each. Saturday night and Sunday I spent with Mr. Howard, of Holme. His apiary at Huntingdon, which I saw in the spring, bears no comparison to the one he now possesses. He is working well in his neighbourhood, having made many converts to the new system. With a few men like Mr. H. in different parts of the country, I feel sure the objects of our association would be better known, and our efforts would not be crippled for wants of funds.—C. N. WHITE.

Cambs., Boxworth.—The honey yield here this season has been under the average, although somewhat better than last year. The year began with bright warm weather, causing activity among the bees, and consequently a large consumption of their stores. During April, and the first half of May, much cold weather was experienced; the bees were consequently unable to avail themselves of the rich store of provision to be obtained from fruit trees while in bloom. From the middle of May till the end of June the weather was much more favourable, and stores came in abundantly from white clover. Throughout July wet weather and cool nights were the rule, and all work at a standstill. As the honey season is nearly over when July has passed, it will be seen that the actual honey-gathering was of very short duration. Strong hives, however, yielded a surplus of 10 lbs. to 15 lbs. each, of super-honey, and are in good wintering condition. Happily the ancient 'brimstone-pit performance is here gradually giving way to driving. In this small neighbourhood I had at 'taking-up time,' the satisfaction of thus saving thirty-three colonies of bees from the cottagers' brimstone pits. During the second week in October (temperature averaging 62 degrees in the middle of the day) large quantities of pollen were gathered and stored, an unusual occurrence so late in the season.—S. S. GOLDSMITH.

Cornwall, Padstow.—I have assisted in driving about forty skeps of bees this autumn, and I do not think the whole lot had more than 150 lbs. of honey in them. This will give you some idea of the kind of season we have had here. Some of those operated on were in the midst of a fine heather district, but they were nothing above the average, and the very best we have had have been within a mile of the Atlantic Ocean, and where they have had to depend on the wild thyme and white clover, the former predominating. Our own bees have done but little; many not having gone to super at all and storing very little indeed in brood-combs; so that we have had to feed extensively, making the record one of outlay instead of income.

Bees are plentiful, and, as in other parts, have increased in number of stocks considerably, there being great numbers of casts and maidens. Some have already died of starvation, and my opinion is that cottagers will have but few bees in this district next year. —CORNUBIA.

Gloucestershire, Fairford.—I quite hoped that there would have been a Bee-keepers' Association established for Gloucestershire before now, but it seems very slow work preparing for the start. It has been a very poor year for us new starters, as there are many old bee-keepers in this neighbourhood who have generally taken from 60 lbs. to 100 lbs. of honey, and have not been able to take any this year, and there are four people in this part who have destroyed all their stocks on account of having been stung, and so many deaths from stings having been reported in the papers. I took 7 lbs. from a Pagden super, and 12 2-lb. sections from Abbott's Irish hive, but they were not quite made up.—JOSEPH COOK.

Sussex.—Since my last we have had little fine weather, but generally windy and wet, excepting a few days between the 7th and the 14th of this month, when, with the wind north-east, the sun cheered us up and helped on the completion of winter arrangements. It is worthy of remark that during this season and last, the only honey gluts, though of short duration, came while the wind was in the east; in fact, we have had no settled weather except from that direction. Work with the bees is of course all over, but while working for them during the winter months the time will rapidly slip by and find us once again amongst our newly awakened pets. Of all the seasons of the year, no time seems so joyous, filling the bee-keeper with hope, as when the bees begin to stir and come home laden on the first spring mornings. —S. SIMMINS.

North Leicestershire.—Bees have been pretty well at work on the ivy nearly every day up to date (25th inst). Large stores of pollen have been carried in, and in one instance a correspondent, Mr. Johnstone Ward, of Quorndon, reports considerable addition to his winter stores of honey. Borage still attracts a good number of bees, and late bushes of Michaelmas daisy have not been neglected. It is several years since ivy proved of any use to the bee-keeper, and the good effect of the abundant supply of pollen this season will doubtless show itself when spring stimulation commences.—E. B.

Wilts, October 22nd.—Many weak stocks, especially among cottagers, dead and gone, stocks that have been

burnt have not yielded more than 3 lbs. per hive. The best take in this neighbourhood 50 lbs. from nine. Fairly good stocks in frame-hives; doing better the first half of October than in August and September, and getting into good condition for winter; with a little syrup in many cases, but brood very scarce. No frost as yet. Rain has fallen on twelve days of the month, up to 22nd.—W. E. Burkitt.

Dartmoor, Devon.—I am going into winter this year with 13 stocks, 8 in bar-frame hives (Woodburys) 4 skeps, and 1 bar-frame straw skep. Considering the situation of this neighbourhood, and the constant rain and wind from the west, I am satisfied with my harvest of honey this summer. I began the spring with 3 bar-frame hives, and purchased 2 first swarms June 14th and 23rd, and some casts in August, which I fed well and have taken 75½ lbs. of honey, leaving enough, I hope, for the bees to winter on, and have not quite finished feeding yet. My neighbours (cottagers principally) have done fairly well. I have driven some skeps for them, weighing in some instances between 30 and 40 lbs. keeping the bees for myself for uniting: though some of their late casts, when I came to turn them up, were dead from starvation. The weather for the last three months with the exception of a fine fortnight in August, and a few days in September, was very unsettled. The heather this year on the moor lasting but a short time in bloom, owing to the wind and constant rain; though in August I am sure the bees took every advantage of it, and visited the moor distant as the crow flies about half a mile in perfect swarms. It was most interesting to watch the clouds of them from my garden going and returning. I believe this to be a good locality for bee-keeping throughout August and September if the weather is fine, and better than the early summer, though we are not destitute of white clover.—T. H. Buckworth, *Okehampton.*

Bray, Ireland, 20th October.—The weather during the latter part of September and beginning of October has been very mild with an unusual amount of sun for the season, causing bees to fly much, and consume a considerable amount of winter stores, and at the same time causing them to dwindle. Almost all hives have required feeding to provide for the winter, and many were altogether dependent on artificial food, even though within a reasonable distance of heather. On the whole, hives commence this winter under much less favourable conditions than they did last. I hear from many bee-keepers that the loss of queens, both *young* and those of medium age, has been very common, the losses principally resulting from showery weather. On the 12th of October I placed a cake of candy made according to Mr. Saddler's receipt over the combs of a hive which had not been sufficiently fed to stand the winter, since then the bees of that hive have flown more than those of any other I possess, I presume bringing in water to melt the candy, though the weather during that time has been cold and wintry; this is not a good beginning towards coming out strong in spring. —E. D'O.

Wicklow, Tinahely.—Mr. Traynor informs us that as the land he now occupies is required for farm-labourers, and that, though he has been living nicely by keeping a cow, pigs, poultry, bees, and rearing vegetables in his garden, he is considered a 'person of no occupation;' he would be obliged by being informed where he can get a cottage and a few acres of at a fair rent. His bees are packed up with candy for wintering.

Cairnie by Keith, N.B.—With few exceptions, bees are now in their winter quarters and in good condition. Considerable attention has this year been given to feeding. The other day I had some work in removing a number of straw hives; and this is the way I did it, viz., nailed the hives to their ekes with 1½-inch wire nails, then the ekes to their boards, put a bit of perforated zinc over the doors and crown-holes, put three inches deep of hay in the bottom of a long cart used for trade purposes, placed the hives in the cart with their mouth downwards, then started over a rough road three miles long. Result, *not a cell broken.* I heard of a party who packed with mouth of hives upwards, with results somewhat different.—A. Cockburn.

Extract from a letter to me from Herr Dennler, at *Enzheim, Alsace, October 6th*:—'I have had this year nine hundredweight of honey from my twenty hives. I believe this is chiefly due to my hindering as much as possible the issue of swarms. This I did by confining the queen. Whenever I had a swarm I always united it to another, or put it back with swarms. I confined the queen the third day, and the whole double population had only to think of the collection of honey. Several hives gave me 50, 75, 80, and one hive 92 lbs. of honey. The early part of the season was prosperous, but summer wet and cold.' I think this system of confining the queen during the honey-getting season merits attention.—C. F. Pearson, *Nancy, France.*

Queries and Replies.

Query No. 717.—*Sanguine Calculations.*—Will you kindly inform me what you think of the following calculations, and if you think I could work up an apiary on them while working at some other calling? Do you think the returns for honey are over-stated? I have an eye to bee-farming in New Zealand, and I should like to keep just so many hives as I could manage myself by industry and perseverance. Do you think I could manage the 256 without help then? If I have not overstated the returns for honey, what a nice income that would be for me, 320*l.*, and that by my own industry!

Commencing with two stocks, say in the autumn, and allowing for each stock to double itself each year, the results would be,—

				£	s.	d.
End of 1st year	4 stocks*	...	...	2	10	0
,, 2nd ,,	8 ,,	...	...	10	0	0
,, 3rd ,,	16 ,,	...	...	20	0	0
,, 4th ,,	32 ,,	...	...	40	0	0
,, 5th ,,	64 ,,	...	...	80	0	0
,, 6th ,,	128 ,,	...	...	160	0	0
,, 7th ,,	256 ,,	...	...	320	0	0

D. H. Durrant.

Reply to Query No. 717.—We are afraid that you have been 'reckoning without the host.' We must refer you to the *British Bee-keepers' Guide Book*, where the best of advice is given, viz., 'The beginner should never attempt to start on a large scale, but should commence with one, or two hives, and increase his number as he gains knowledge and experience.' When you have gained these you will see the fallacy of your present calculations. You do not appear to have taken into consideration *losses*—loss in wintering by dysentery, or foul brood—loss of queens—loss of swarms, &c., &c.—honeyless seasons, when bees require feeding all through the summer, and yield no present return. We do not wish to dishearten you, but would advise you to study more of the authorised 'bee literature' before you enter upon so large a venture. Then as regards New Zealand, where bee-culture is in its infancy, but where the climate and honey-yield are simply magnificent—there is literally no market, and honey is unsaleable. For many years to come England will be its only market. Consider that in the United States the finest samples of honey may be

* 25*s.* per hive is allowed for each as clear profit; but 2*l.* 10*s.* is only allowed for the first year as a set-off against the cost of stock. Some reckon 35*s.* per hive, and some more, but I think with good management 25*s.* per hive might be realised after paying expenses and allowing for loss, &c.

bought at from 10 to 12 cents (*5d.* to *6d.*) per lb., and they are only one-third the distance of New Zealand from this country. During six months of the year, instead of being able to manage 256 hives yourself, you would require at least half-a-dozen skilful experts at bee-manipulation. We strongly recommend to your notice that most excellent precept, 'Make haste slowly.'

Query No. 718.—1. *Prepared for Winter.*—From the fact that bees are carrying pollen into the hive, is it a certain proof that they are raising brood? I have driven five stocks of condemned bees this season, and united the lot in a bar-frame hive. I duly syruped the bees, who have taken down 10 lbs., most of which is sealed over, and I intend giving them 5 lbs. more. Is it probable they will last the winter in good chaff packed-hive, with flannel mattresses? 2. *Bee Flowers.*—What are the common names of a few good bee-flowers?—F. J. C.

Reply to Query No. 718.—1. There is no doubt that the queen is breeding, which shows that the hive is prosperous thus far. Give candy in preference to syrup at this late period, and it is very likely that you may carry the stock through the winter. If they survive, feed with syrup as early as February, weather permitting? 2. You will find lists of bee-flowers in all bee-books and in our back numbers.

Query No. 719.—I purchased a bar-frame hive with fourteen frames, being too late in the season to have a swarm from it. Never examined till last week; found four frames with two inches deep of sealed honey, each side of top of frame, and two with one inch. Could not see any queen nor brood, but plenty of bees in middle of frames. Put those six frames in back of hive and a division-board between, and gave them a cake of candy. Please tell me what is requisite in your next issue.—John Evans, *Reynoldstone, Gower.*

Reply to Query No. 719.—*A Limited Amount of Food.*—You do not state the size of your frames. If fourteen inches long, then, according to your statement, the frames contain about 9 lbs. of honey, which is not enough for wintering upon. A supply of candy on the top of the frames beneath the quilt will probably carry the bees through the winter, especially if it prove a mild one. Do not disturb them, but cover up well with several thicknesses of flannel. If you are not expert at finding a queen, it is best to leave them alone, and trust to the chance of their having one.

Query No. 720.—*Preventing Swarming.*—I was thinking of a plan of preventing swarms. It was to confine the queen to half-a-dozen frames at the back of the hive with a frame of excluder-zinc, also placing excluder-zinc between frames and sections. Would the excluder-zinc prevent the bees carrying in pollen to the brood, thus injuring it? Would this plan put a stop to Ligurians swarming?—J. P. Allen.

Reply to Query No. 720.—You will find the identical plan suggested by Mr. Abbott in the *Journal* about three years ago, and for the same purpose. Long-holed excluder-zinc, such as now always used, offers little obstruction to carrying in pollen; round holes rub it off the legs. See extract from Mr. Demuler, p. 240.

Query No. 721.—1. How many frames, Standard, would you recommend in hive in a first-class bee district? I intend to make a twin hive, opening at each end, and a board dividing them. The hive is to have two floor-boards; the board in centre is to be fixed. Would you recommend that make? 2. *Barley Sugar.*—How long does barley sugar take boiling when it begins to boil? Some writers recommend not to stir after it boils. 3. *Queenless Hive.*—I have a stock of bees that I fear is queenless. I gave them a queen in cage, and left them for thirty-six hours. I smoked the bees, and released her out of a pipe-cover cage. The bees attacked her, and I fear one of them stung her. Do bees gather pollen when queenless, as my bees are working yet? I examined and could not find the queen. The hive did not swarm at all this season, and did not produce any drones until late in season. Would it be a good plan to unite to another hive? 4. *America or Tipperary.*—Would the States of America or California be preferable to a first-class district in Tipperary? 5. *Foul Brood.*—Is the enclosed portion of comb chilled brood or foul brood?—A Lover of Bees.

Reply to Query No. 721.—1. Make your twin hive at least 40 inches long inside. Make your floor-board all in one, and your division-boards, of which there should be three, moveable. As you gain experience you will see the wisdom of doing this. Ten or twelve frames will be required for each stock. 2. Barley sugar must be boiled until a drop on a cold plate sets hard. Do not cease to stir for a moment, or it will burn, and burnt sugar is poison to bees. 3. You should have left the bees to liberate the queen from the pipe-cover cage themselves, and she would have been received. Carrying pollen is a usual, but not invariable, sign of the presence of a queen. By all means assure yourself of her presence before wintering, and if absent unite at once. 4. We can give no advice on this point. 5. The portion of comb forwarded is foul brood.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Boz, *Cork.*—*Candy.*—Do not give the deliquescent candy to your bees in winter. Keep it dry, and it will be useful for stimulative feeding in spring.

Mrs. Lazarus, 55 *Penn Road Villas*, N.—The bees kept on leads, two stories high in Holloway, might prove an interesting study, but it is not probable that they could be kept advantageously there. The garden flowers in that neighbourhood could not furnish sufficient sustenance: they would require constant feeding. Broad fields with hedgerows and trees and wide commons are necessary for the well-being, if not the being, of bees.

H. Crawley, *Kingston.*—*Mating.*—The letter you refer to expresses the opinions of but one bee-keeper; and if you read the succeeding sentence it appears as if the word 'luckily' applied to mating, and not specially to cross-mating. Most bee-keepers would be of the same opinion as yourself, although some prefer a first-cross to either of the pure races.

Beta.—*Packing.*—Your plan of packing is correct. But if you arrange your hives another year with the frames across the entrance, and pack as recommended on p. 200 to E. C. Lauder, it will be better. 2. *Winter Feeding.*—Discontinue feeding at once, whether sufficiently stored or not; if not, give when in want a cake of candy on top of frames, or some barley sugar in a feeder. 3. *Draughts.*—Close up the hole at once. Never permit a draught or current of air to pass through the hive. 4. *Amount of Syrup.*—If they had combs already built 15 to 20 lbs., they had to build them 30 to 35 lbs.

J. W.—*Robbing.*—The bees in front of hives were robbers which had been repulsed. 2. *Distance of Combs.*—The distance from centre to centre of combs in supers should be 2 inches; in stock hives, $1\frac{3}{5}$-inch.

M. B., *Collompton, Devon.*—Your bees have up to the date of letter received sufficient food; they have been rather too much stimulated. The temperature of the hive has been unduly raised, and the comb-building impulse has been generated. The small pieces of wax noticed are the chippings that frequently fall to floor-board when the bees are extending the walls of their cells. The bee you enclosed is in the act of extruding the plates or lamina of wax from the rings of the abdomen, and hence its peculiar appearance. It is desirable, however, to inspect the interior of the hive and see the amount of food stored: and if necessary, give them a cake of candy under the quilt.

Rev. H. J. Sinthorp, *Kilkea Parsonage, Ireland.*—The chrysalis with cocoon forwarded is not that of the Wax-moth, but that of the Light Orange Underwing Moth (*Brephos Notha*, Hübner).

Honey, *Sandy.*—The honey forwarded has a decidedly musty taste, and is very objectionable. We should conclude that, presuming it had been kept free from damp, the honey had been gathered from some flowers peculiar to the locality.

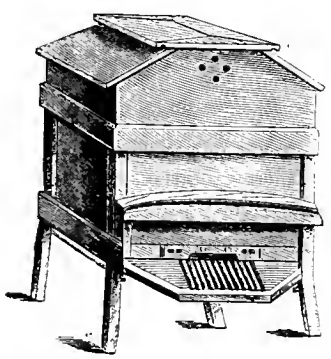
R. M'Nally.—*Wild Bee.*—The bee forwarded belongs to the genus *Nomada*, so named from its wandering habits. It is found hanging about hedgerows and the banks enclosing fields. It is very elegant in form, and a collection of the bees comprising this genus would form an attractive addition to a museum. The female is armed with a sting, but the puncture is but slight, and the irritation soon vanishes. Not being provided with an apparatus for gathering pollen, it saves itself this labour, and also that of excavating cells, by gliding into those of its more industrious neighbours; it then, cuckoo-like, insinuates its own eggs, the larvæ of which are nourished at the cost of the rightful occupants.

W. Turner, *Haughley, Suffolk.*—We have every reason to presume that due discretion had been exercised in the selection of the judges, and that these gentlemen acted conscientiously in making their awards.

T. Smith, *Lydney Park.*—The difference in the results of the two stocks was caused by stock No. 2 having a larger number of bees, and a more vigorous and prolific queen.

F. Eccles, *Wakefield.*—1. You will find the results of the Bligh Competition in the present number. 2. *Italian bees.*—There are good and bad Italian bees; the difference arising from (*a*) the locality in which they are raised; the bees from the Alpine valleys being the best; and (*b*) the way they are raised; some breeders raising for quantity only, others for quality. The good Italians will probably beat the black bees every season; but native bees will beat the bad Italians probably every season, but certainly in a bad one. 3. *Confining Drones.*—We should not advise such a plan, it would cause great confusion and excitement in the hive—drones that are not desired should not be produced. 4. *Tents.*—Mr. Huckle would be able to assist you in making the tents mentioned. 5. *Anglo-Cyprian Hive.*—(*a.*) Zinc runners will of course answer best with wide-ended frames, but with metal ends would be unnecessary. (*b.*) For twin stocks the entrances should be at end of each side, not at end of hive at all. Mr. Blow has given up the idea of entrances at end of hive altogether. (*c.*) Toppling over is prevented by the metal ends. The present frame can be used easily in the extractor, but the contention is, and has always been, that it is a hive for supering only, not for extracting at all. (*d.*) The bar F would greatly interfere with drawing out the frames. It is shown to be in contact with them, propolization would at once ensue and cause the frames to be fixtures. Crushing too would be bad. Same remarks would apply to block G; also to E. All these alterations are unnecessary, and in our opinion are not improvements, but just the other way. The fixed roof L would render it impossible to super on that side of the frame, and the great point is that the Anglo-Cyprian Hive should have immense supering powers.

G. Munday, *Leicester.*—You have not read your *Journal* very carefully, or you would have seen that the remarks on p. 215 are made by a correspondent, and refer to hives used by him, and probably of different plan to yours. There is no contradiction between replies Nos. 707 and 716. If you give 7 lbs. of syrup made as in 707 to bees, they will evaporate out a great part of the water before sealing over, just as they do from the natural nectar of flowers, which is much thinner than ripe sealed honey.



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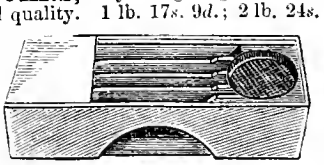

LISTS FREE OF ALL BEE FURNITURE.

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THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

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Editorial, Notices, &c.

BRITISH BEE-KEEPERS' ASSOCIATION.

The following circular has been issued to the members of the British Bee-keepers' Association, and will in due course be sent to the members of the several County affiliated Societies. It commends itself to the thoughtful consideration of every one having the promotion of the bee-keeping cause at heart. We trust the appeal will be heartily responded to, and that the B. B. K. A. will be set quite free to continue its noble work :—

'The President and Committee of the British Bee-keepers' Association beg to remind you that since the year 1874 this Association has been engaged in spreading a knowledge of bee-keeping throughout the United Kingdom, mainly with a view to giving artisans and agricultural labourers a new pleasure and interest in life, and enabling them to make some addition to their incomes by the sale of honey, bees'-wax, and swarms of bees. The advancement of bee-keeping as a scientific pursuit has also been an object of the Association.

'The Association has endeavoured to accomplish the task set before it by the formation of Bee-keepers' Associations in Scotland and Ireland, as well as in the English counties. Thirty-four County Associations have been established in England and Wales, and several others are in course of formation.

'In doing this the expenses of the Association have been very much increased, and it has proved difficult to carry on the work of the Association with the present income from the subscriptions of the members, amounting to about 160*l.* per annum. This year an unexpected heavy loss has been sustained by the Association upon the two shows held at Bridgwater and at Knightsbridge. Through special circumstances the Association was compelled to bear the whole expense of these shows, without receiving the assistance which during late years it has received from the Bath and West of England Society, and the Royal Horticultural Society. In the latter case, the International Fisheries Exhibition occupied all the available space in the Gardens at South Kensington, and was the reason of the Annual Metropolitan Show of the British Bee-keepers' Association being removed to the Duke of Wellington's Riding School at Knightsbridge. The losses on the two shows amount to above 150*l.* To cover the deficiency, the President and Committee have advanced this amount, and the Association is thus relieved from any financial pressure. It is, however, very much to be desired that the sums advanced be repaid as speedily as possible, and the Association set quite free to continue its work.

'I am, therefore, requested to ask whether you will kindly give a donation towards the repayment of the debt, or become a life member of the Association by a subscription of five pounds? The following is a list of the present life members :—

The Baroness Burdett-Coutts, 1 Stratton St., Piccadilly.
Burdett-Coutts, A. B., 1 Stratton Street, Piccadilly.
Brahmah, Mrs., Babington Rectory, Faversham.
Beale, Dr. Lionel S., F.R.S., 61 Grosvenor Street.
Barneby, W., Clator Park, Worcester.
Cowan, T. W., F.G.S., F.R.M.S., Comptons Lea, Horsham, Sussex.
Derby, The Earl of, 23 St. James's Square, London.
Dunn, Captain R. S., Malcolm Peth, St. Leonards.
Harman, Col. King, Rockingham, Boyle, Ireland.
Hooker, J. M., Heathfield, Sevenoaks.
Kettlewell, W. W., East Harptree, Bristol.
Morrison, Mrs. F., 8 Cromwell House, South Kensington.
Peel, Rev. H. R., Thornton Hall, Stony Stratford.
Pennant, Hon. G., Wicken, Stony Stratford.
Saunders, Major-General, Croomes Hill, Greenwich.
Stewart, D., Portland, Knockholt.
Turberville, Lieut.-Col. Picton, Ewenny Priory, Bridgend, Glamorganshire.
Wartnaby, Mrs. H., Market Harborough.

'I shall be glad to receive any donation or subscription which you may think fit to send.—I am, yours very truly, HERBERT R. PEEL, *Hon. Sec., Thornton Hall, near Stony Stratford, Bucks. November*, 1883.'

SUBSCRIPTIONS.

Hon. and Rev. H. Bligh	£1	1	0
Cray Valley Bee Farm	1	1	0
T. W. Cowan	2	0	0
W. H. Dunman	0	5	0
F. L. May	2	2	0
D. Stewart	0	10	6
Miss Gayton	0	5	0

The following members have also increased their subscriptions for next year, viz., Hon. and Rev. H. Bligh, H. Jonas, G. Henderson, Mrs. Driver, and C. Tite.

BEE-KEEPING AS A PURSUIT FOR LADIES.

On page 253 we have given a portion of a most interesting lecture, delivered by Mr. H. M. Jenkins, F.G.S., Secretary of the Royal Agricultural Society of England, in connexion with the Royal Dublin Show. The lecture was entitled 'Some of the Duties of a Farmer's Wife,' and its object was to show the various concurrent methods which might be adopted by the wives and daughters of farmers to increase the income of the family.

Mr. Jenkins very felicitously introduced his subject by comparing a farm to a shawl. A shawl consists of two parts,—the main body of the shawl and its surrounding fringe or border. The management of a farm constitutes the chief duty of the farmer himself; but there is an 'agricultural fringe' of duties which naturally devolve upon the farmer's wife and daughters. This 'fringe' consists in attending to dairy-work, cheese-making, poultry, bee-keeping, gardening, cooking, bread-making, &c.

Of late, by means of County Associations and shows, bee-keeping has been developing and asserting itself, and has put forth a clear and distinct claim to be considered an auxiliary to the farmer. In the same number of the *Farmer's Gazette* in which Mr. Jenkins' lecture is reported, a comparison is instituted between bee-keeping and the other minor objects of farm-work, and the writer comes to the conclusion that 'bees return a greater percentage of profit than anything else a farmer can keep. Every farmer should produce honey, and thus add to his income.'

Mr. Jenkins, in his advocacy of bee-keeping as one of the duties of a farmer's wife, has, we consider, been extremely fortunate in obtaining the reports of Miss Gayton, a lady who is well known to the readers of the *Bee Journal* by her success as a prize-taker, not only in the Metropolitan Show, but also in those of her more immediate locality. From the beginning of her career as a bee-keeper, Miss Gayton has, in a most methodical and business-like manner, kept an accurate account of her expenses and incomings; and these 'stubborn' figures have served well to emphasize the statements, and to point the moral, of the lecturer.

The great lesson to be deduced from the reports of Miss Gayton is not, we conceive, that bee-keeping is a pleasant, fascinating, and profitable pursuit, but that it clearly indicates the facility with which ladies, residing in rural districts and in the suburbs of great towns, may be enabled to make an addition to their incomes.

Nothing of late has been more clearly demonstrated that with ladies having slender incomes there is a great struggle for the means of livelihood. They earnestly desire to take their part in life's race in order to gain their own subsistence. They have no desire to settle down as incumbrances on their relations, or 'to sit with deedless hands waiting on black Fate.' To such we say that bee-keeping affords a ready opportunity of increasing both their pleasure and their income. Of course apiculture is not to be entered upon with a 'light heart' by all. It is a work, not an act,—a *labor* and an *opus*. Certain qualifications are requisite to make a true apiarian. Energy and thoughtfulness, promptitude and patience, and a love of the work, must all be brought into action in order to achieve success. But it may safely be predicated that with these qualifications bee-keeping will bring its own reward. Work in the open air, with the accompanying amount of exercise, will cause the labour and duties of each day to grow more easy, and each successive season will see an increase in the amount of stocks. Many have found in this pursuit renewed health and strength. In America many of the advanced and successful bee-keepers are women. Mrs. Tupper, whose Prize Essay is one of the most practical dissertations on bee-keeping of the present day, says:—

> 'The quick observation and gentle handling, so requisite in the business, belong peculiarly to women, and there is no part of it which is laborious, or that may not be appropriately performed by them. It has proved to me of great benefit. I came west twelve years ago, under sentence of speedy death from one of New England's best physicians, yet now rejoice in perfect health restored. More than to all other causes I attribute the change to the interesting occupation which has kept me so much of the time in the open air, and *paid me for being there*. I most heartily recommend it to others, who are seeking either health or a pleasant and profitable employment.'

Another elegant writer on apiculture, and successful apiarian, Mrs. Harrison, of Peoria, Ill., states that she was informed by her physicians that she could not live, but apiculture had been the means of restoring her to health, and has given her such vigour that for many years she has been able to manage a large apiary. The lady who writes in the *American Gleanings* under the name of 'Cyula Linswick,' in a paper read before the Michigan Convention, of March, 1877, says: 'I would gladly purchase exemption from indoor work, on washing day, by two days' labour among the bees, and I find two hours' labour at the ironing-table more fatiguing than two hours of the severest toil the apiary can exact.' Mrs. L. B. Baker, of Lansing, Michigan, read a paper before the same Convention, in which she bears similar testimony, she says: 'By beginning in early spring when the weather was cool and the work light, I became gradually accustomed to out-door labour, and by midsummer found myself as well able to endure the heat of the sun as my husband.' Mrs. Baker commenced with two colonies of bees; her nett profits the first season were over $100, the second year about $300, and the third $250.

But we need not point only to our Transatlantic sisters; we have had, and have, many in our midst who have found not only pleasure, but success in the pursuit. Miss Stirling Graham, of Duntrune, whose faithful and elegant translation of De Gelieu's *Bee Preserver* is well known to all bee-keepers, derived through an extended life-time the greatest joy in attending to her hives. In Miss Gayton, of Much Hadham, Herts, we have a notable example of perseverance and success. She states that she has found bee-keeping a most interesting occupation, and though at first she suffered very much from stings, she now experiences

no discomfort except the slight pain at the minute; she is now able to handle bees quietly and gently; and with no protection but a veil she can do anything with them. The whole of Miss Gayton's experience will be found most encouraging. We have seen also during the past season Mrs. Bellairs, of Christchurch (the wife of E. Bellairs, Esq., the Hon. Sec. of the Hampshire and Isle of Wight Bee-keepers' Association), deftly and fearlessly driving bees, without veil or gloves, and doing the work of an expert at several shows.

We might adduce other instances of the success of ladies in this work, but our space is exhausted. We trust, however, that many may be induced to follow the examples we have given.

We have incidentally heard that Mr. Jenkins' lecture has done much to give an impulse to ladies keeping poultry; we trust that it may act in a similar way by encouraging many to commence the pursuit of apiculture.—G. H., *Ealing*.

BLIGH COMPETITION.

We desire to direct the attention of our readers to a suggestion contained in a letter from the Rev. G. Shipton, of Brampton Vicarage, Chesterfield, in which he expresses an opinion that the experiment entitled the 'Bligh Competition' should have another trial, as the results of that which has just been completed have not been so satisfactory as they might have been, the number of competitors being so limited from the novelty of the competition and from the rules not having been sufficiently understood. Mr. Shipton has generously offered to commence the subscription with a donation of 2*l*. We commend this matter to the best consideration of the Committee of the B.B.K.A.

BRITISH BEE-KEEPERS' ASSOCIATION.

Conversazione.

At the Quarterly General Meeting of the above Institution, held in the Board-room of the Royal Society for the Prevention of Cruelty to Animals on Oct 17th, at 6 p.m., a large company assembled, including Hon. and Rev. H. Bligh, Rev. G. Raynor, Rev. F. S. Sclater, Rev. W. E. Burkitt, Rev. A. Welch, Rev. H. R. Peel, W. O'B. Glennie, F. Cheshire, H. Jonas, D. Stewart, W. A. Kirchner, J. Garratt, G. Henderson, F. Meggy, G. D. Havilaud, G. Drinkwater, &c., &c., for the purpose of hearing a lecture entitled 'The Chemistry of the Hive,' which was delivered by Mr. Otto Hehner, F.I.C., F.C.S., Public Analyst. The lecturer had provided himself with a considerable amount of apparatus and chemicals, and during the course of his remarks performed some highly interesting and instructive experiments.

Dr. G. Walker was voted to the chair. After briefly opening the proceedings he called upon Mr. Hehner to deliver his lecture.

Mr. Hehner said:—I have to tender my apologies to the members of the Association for again, and after so short an interval, appearing before you in the character of a lecturer. After having at your meeting in the Riding School at Knightsbridge detailed the results of my investigations into the nature of honey and of wax, and described methods for detecting any adulterations of the products of the bee, nothing was further from my thoughts than any pretension of again referring to this subject. If, nevertheless, I have altered my mind, I beg you to lay the responsibility with a very active member of your council, Mr. Hooker, who has prevailed upon me not only again to take up this subject, but also to extend its scope.

The object of my discourse three months ago was solely a practical one, namely, to point out the chemical differences between honey and wax and the great variety of substances which have been known to be employed as adulterants, and to give simple directions for the detection of such substitutions. To-day, with your permission, I propose to inquire into the processes running their course in the body of the bee, by which the secretion of wax and of honey is brought about. To be able to do so in an intelligible manner, I have to divide my inquiry into three sections, namely, the nature of wax and honey, the food of the bee, and the chemical changes undergone by the food.

Even a very superficial examination of wax reveals the fact, that it is not a perfectly uniform and homogeneous substance, but that it is composed of at least two dissimilar bodies. Thus if wax be boiled with spirit, one portion—the smaller one—readily passes into solution, whilst by far the greater proportion is left practically untouched by the spirit. After the removal of the solvent by evaporation, the two portions are seen to be different in appearance, consistency, and possess different melting-points.

A good many years ago Sir Benjamin Brodie was the first to investigate the chemical nature of these substances, and he called them respectively *Cerotic acid* and *Myricine*. He also endeavoured to ascertain the relative proportions in which these two bodies occur in wax; and he states, that in a sample of English wax the cerotic acid amounted to 22 per cent, whilst one of Ceylon wax was, according to him, free from that acid. Other investigators, on the other hand, state that no less than 90 per cent of wax consist of cerotic acid, others give the quantity at 70 per cent, and one again at 10 per cent. It would follow from these statements, supposing them to be correct, that wax was subject to extraordinary fluctuations in its composition. This in the case of a product which is so remarkably uniform in all its physical characters as wax appeared to me very unlikely, especially since comparatively recent investigations into the nature of other animal secretions, notably milk and butter, have entirely exploded the older ideas about the variability of the products referred to. I thought it worth while, therefore, from an examination of a very great number of samples of pure yellow wax, to satisfy myself of the correctness, or otherwise, of the statements made. Through the kindness of a number of members of your Association, and others, I was placed in possession of samples representing a number of English counties, especially Herts, Lincolnshire, Buckinghamshire, Hampshire, and Surrey, and a great variety of foreign countries—the United States, Australia, Algiers, Madagascar, Mauritius, Jamaica, and Gambia. All English, and many of the foreign samples possessed the usual colour and appearance of wax; others ranged in colour from light grey to dark chocolate brown.

I will not trouble you with the processes of analysis which I adopted—I have referred to them at length at the last meeting, and I have described them in detail in the *Analyst*, Feb. 1883, but the general results are perhaps sufficiently interesting to find a place here.

The percentage of cerotic acid varied from 13 to 16 per cent, most of the samples showing between 14 and 15 per cent, the average of the total being 14·4 per cent. The quantity of Myricine reached from 86 to 89·6 per cent, the average being 88 per cent.

Obtained as these results are from a great number of samples and by means of methods not at the disposal of former investigators, I think I may safely take them to establish beyond a doubt that wax, instead of being an extremely variable mixture, is really remarkably constant in composition. This conclusion is of great con

sequence in two respects. First, it renders it quite possible, and even easy, to devise methods for the detection of adulterants—impossible if it be admitted that the pure product was never twice alike, and subject to such variations as are possible between pure myricine on the one hand, and pure cerotic acid on the other. And second, it furnishes the strongest possible proof in favour of the view which holds wax not to be merely culled by the bees from the various flowers they visit, in a ready-made condition, but that it is a product of their own vital functions. I shall have to recur to this point in detail further on.

Having thus split up wax into two proximate constituents, I must now inquire into the nature and composition of the same. When subjected to analysis, both the cerotic acid and myricine are found to consist of the three elements by the union of which the great majority of organic products are built up, namely, carbon, hydrogen, and oxygen. And counting, with the mind's eye, the number of particles of these three elements, which make up cerotic acid, twenty-seven particles, or atoms, of carbon, fifty-four of hydrogen, and two of oxygen, will be seen joined together into one firm complex of atoms. Cerotic acid, as its name implies, is a real acid, like sulphuric acid; that is to say, it is capable of combining with alkalies, such as soda or potash, and to turn the colour of certain organic colouring matters in a very decided manner.

Myricine itself can be readily broken up into two very dissimilar parts. By boiling with an alkali one part of it passes into solution, whilst the greater portion remains behind. The former has been identified with a substance composing the greater portion of the fat called palm-oil, namely, palmitic acid. It is built up of sixteen particles of carbon, thirty-two of hydrogen, and two of oxygen. The undissolved part consists of thirty atoms of carbon, sixty-two of hydrogen, and one of oxygen, and is called myricylic alcohol.

On examining the proportions of carbon, hydrogen, and oxygen, which make up the three compounds which I have named, one cannot help being struck with the fact, that both in the case of cerotic and of palmitic acid the number of hydrogen particles is double as great as that of the carbon, whilst both contain two of oxygen. They are evidently constructed, so to say, on the same model. The myricylic alcohol, on the contrary, contains two more particles of hydrogen than the double number of the carbon, and only *one* of oxygen.

There exists in nature, in various products, both animal and vegetable, a considerable number of compounds similarly constructed to the substances referred to. Thus, if we were to examine the acrid secretions used, as a means of defence, by the bee, the ant, certain caterpillars, and by stinging nettles, we would find in them an acid substance, called formic acid, in which one particle of carbon is joined with two of hydrogen and two of oxygen. In the acid of vinegar, acetic acid, two of carbon, four of hydrogen, and two of oxygen, are combined. In the rank product of the decomposition of butter, butyric acid, four of carbon are linked with analogous proportions of the two other elements; and so on, in the case of very many other acid compounds, formic acid being the simplest link of the chain, cerotic acid the highest, heaviest, and most complicated. The whole series is called that of the fatty acids, because two of its members, namely, palmitic acid, with sixteen particles of carbon, and stearic acid, with eighteen, and a very nearly related acid, oleic acid, make up, in combination with glycerine, the bulk of by far the majority of all fats, both animal and vegetable. I should like to point out, as not a little remarkable, that both the highest and the lowest member of the series are products of the bee.

To every acid there corresponds a compound called an alcohol, having two particles more of hydrogen, and one less of oxygen. Thus, taking vinegar, or acetic acid, the corresponding alcohol, with two particles of carbon, six of hydrogen, and one of oxygen is *the* alcohol *par excellence*, which gives the name to the whole series; whilst to formic acid corresponds methylic alcohol, the important constituent of methylated spirit, having the smallest number of carbon particles contained in any alcohol. Myricylic alcohol, again, forms the highest member of the chain. Wax contains both the most complex fatty acid, and the highest alcohol which has been found in nature.

The physical properties of these series of substances vary, step by step, with their complexity. Those which contain low numbers of carbon particles are volatile fluids; the medium ones are oily substances; the most advanced members are solid, and with each carbon particle they become harder and less fusible, until the culminating point is reached in the case of cerotic acid and of myricylic alcohol. The natural consequence is, that beeswax has an extremely high melting point, a circumstance of great importance in view of the functions it has to fulfil. In a hive, where thousands or tens of thousands of insects congregate, where the chemical changes constituting life take place on a large scale, where a comparatively enormous amount of organic food matter is used up, heat must be evolved to a very considerable degree. I believe I am correct in stating that the temperature of the hive is very much above that of the surrounding air. At that temperature wax is solid, yet pliable. Any compound having a lower proportion of carbon, and consequently a lower melting point than cerotic acid or of myricine, would be but ill adapted for the construction of a comb. Chemical changes, and especially those constituting animal life, invariably involve changes of temperature. These may be immeasurably small in the case of individual insects, but multiplied a thousand-fold they become very evident. Even in vegetable life such changes can often be observed; for example, rapidly growing flowers are often many degrees warmer than the outer air.

Wax, then, is a compound made up entirely of fatty acids and their near relation, fatty alcohol. In this sense wax is undoubtedly a fat, but, unlike all other fats, it only deals with the highest links of the chain. Its nearest cousin from the animal kingdom is spermaceti and the fat from certain deposits in fattened geese. In this we find palmitic acid in combination with the alcohol corresponding to it, called cetylic alcohol, made up of sixteen carbon particles, thirty-four of hydrogen, and one of oxygen.

But neither wax nor spermaceti are generally in chemical language classed as fats, the use of that term being restricted to compounds of the fatty acids with glycerine, this substance also belonging to the class of alcohols. In ordinary fats, such as tallow, lard, etc., only palmitic, stearic, and oleic acids are present, together with glycerine, the proportions of the three acids varying; fluid fats, or oils containing chiefly oleic acid; solid, hard fats, palmitic and stearic acid. But in their general behaviour these fats are precisely like wax, for by boiling with an alkali they split up into an alcohol, and into one or more fatty acids, which combine with the alkali forming a soap.

There are but two important animal fats which contain lower members of the fatty acid series than palmitic and stearic, these being butter and cod-liver oil. In both butyric acid and other acids containing but a small amount of carbon particles, occur in considerable amounts.

Only one animal fat contains any free or uncombined fatty acid, and this again is beeswax, with its fourteen per cent of free cerotic acid.

Whichever way, therefore, we look at wax, it presents remarkable features and characteristics which have hardly, so far, received the attention which they deserve. But,

after all, in practical respects, wax is but the less important product of the bee, and I must hasten to the consideration of the nature of honey.

Essentially, honey consists of water and of sugar. Of the water, I need say but little, except that I have found it to vary in quantity from 12 to 25 per cent, the normal proportion being from 18 to 21 per cent. When the percentage falls below 18, the honey is generally very hard and solid; when it is higher than 21 it is frequently quite, or almost, clear. As I shall have occasion to explain presently, the clearness and transparency of any given sample of honey does not depend, however, upon the quantity of water alone.

Normal honey almost invariably gradually divides into two portions, a crystalline, solid one, and a syrupy one devoid of the power of crystallising, and rather sweeter than the solid portion. Chemically these two dissimilar fractions are identical in composition, both containing particles of carbon, hydrogen, and oxygen, in the proportion of six to twelve to six. They are also identical in most of their chemical reactions, such as their behaviour to alkalies, or to solutions of copper or silver, but physically they possess very widely different properties. The crystalline portion twists a ray of polarised light from its ordinary straight path towards the right side, and is on that account called *dextrose*; the non-crystalline portion turns the polarised ray to the left, and has received the name of *levulose*. Of about equal quantities of these two kinds of sugar the great bulk of honey is composed. The occurrence in honey of ordinary sugar, cane sugar has also often been alleged, but I have fully satisfied myself that there is no foundation for such a statement. The proof is comparatively simple. If dextrose or levulose be heated with an alkaline solution of copper sulphate, a red precipitate of suboxide of copper is thrown down: cane sugar does not act in this manner. But by treatment with acids, cane sugar readily changes, it is transformed into a mixture of equal quantities of dextrose and of levulose, precisely as they naturally compose honey. Did honey therefore include cane sugar as one of its normal constituents it should be expected that after treatment with acid the same weight of honey should be capable of throwing down a larger proportion of the red suboxide of copper than before such addition of acid. This, however, is not the case. It is, however, not improbable, for reasons the exposition of which would carry me rather beside my subject, that there do occur small quantities of another saccharine matter. But for my present purpose it suffices to state, and is quite near enough to the truth, that the great bulk of honey consists of a mixture of almost equal parts of dextrose and levulose, or of invert-sugar, as such a mixture is called. Whenever it happens, however, that the comb begins to become crystalline before the honey is drawn, some of the crystals remain with the wax, and the non-crystallisable sugar, levulose, predominates. Such honey, from which the dextrose is partially separated may remain quite clear for a very long time, although the proportion of water may be comparatively low.

On examining the composition of these two sugars it is seen that they are built up of carbon, with twice as much hydrogen as there is oxygen. This is precisely the proportion in which these two elements are united in water, and from this circumstance the substances referred to are called *Carbohydrates*. Like the class of fatty matters that of carbohydrates is a very comprehensive one. It includes apart from a great many saccharine substances, with the very names of which I need not now trouble you, and besides the two sugars found in honey, cane sugar, milk sugar, starch and dextrin. They all act upon polarised light, turning it more or less to the right. When treated with acids, they undergo a remarkable change, they all are transformed more or less completely into dextrose, with the exception of cane sugar, which, as I have already pointed out, yields both dextrose and levulose.

Now the rotation to the left of levidose is greater than the rotation of the same quantity of levulose is to the right. Hence when mixed together in about equal quantities, as in honey, the polarised ray should be twisted towards the left side. This indeed is the case to a slight extent. All other sugars turning to the right, it follows that whatever saccharine admixture is made to honey, the mixture must polarise to the right, thus possessing perfectly distinct optical properties readily distinguishing it from genuine honey. This dextro-rotation is especially marked in the case of starch and its congeners, and nothing is easier than to detect even a small amount of admixture of starch sugars—corn syrup as their mixture is called—with genuine honey.

In addition to this we have other means to distinguish between these starch sugars and honey. Most saccharine matters when brought into contact with yeast at a suitable temperature undergo fermentation, that is to say, they essentially split up into alcohol and carbonic acid. Honey thus ferments when diluted with water, and after the action of yeast has run its course hardly anything remains of the honey but spirit and some amount of acid and glycerine, as products of the fermentation, the resulting solution being without appreciable action upon polarised light.

But allow a solution of starch sugar, or corn syrup, to ferment, and you will find, that long before the total sugary substance has decomposed, the activity of the yeast will have come to a stop, and a very considerable portion of the syrup is left proof against the attack of the yeast; in other words unfermentable. And examining this unfermentable portion with polarised light, it is seen to polarise most strongly to the *right*.

And, lastly, it is quite easy generally to recognise the portion of acid, mostly sulphuric acid, which has been used to convert the starch into corn sugar. It is practically impossible, by subsequent purification of the product, to get rid of this acid, and, as a consequence, it appears in the honey, so called, which is made with it. By adding to a clear solution of such syrup or honey containing it a solution of darium chloride, a white turbidity at once makes its appearance, varying in density with the quality of corn syrup present and its state of purity, and caused by sulphuric acid contained in it. Pure honey is practically devoid of any mineral constituents, sulphuric acid among them, and remains perfectly clear on the addition of chloride of darium.

Should the manufacturer of spurious honey, as he almost invariably does, employ corn syrup as the basis of his compound—the price of syrup being low, and its appearance more like honey than that of other sugars, it is, you will see, a matter of very little difficulty to detect the fraud.

But should the time arrive—and I trust I may not in any way by these remarks contribute towards hastening its advent—when cane sugar, scientifically treated with acid, the latter being after it has fulfilled its purpose, completely, and without leaving any trace removed from the product, I apprehend that the chances will be but very remote of distinguishing such an artificial compound from the pure product of the bee, because indeed both of them are made up of identical substances in analogous proportion, namely dextrose and levulose.

After having said so much about the composition of wax and honey, I must proceed to the next division of the subject, namely, the food of the bee.

Every animal requires for the sustenance of its life and the growth of its body four distinct classes of food constituents—namely, water, mineral substances, nitrogenous matters, and carbonaceous materials; and the bee, of course, is no exception to this great rule of nature. The body of every living animal consisting more or less largely of water, the importance of this compound need hardly

be pointed out as a constituent of the bee's food. But when it is remembered that honey contains about one-fifth of its weight of water, and that the quality and nature of the water taken by the bee, is apt, more or less, to influence the flavour of the honey, the importance of the water supply of the bee becomes all the more apparent. Of mineral constituents I need say but little, for although the body of the insect itself includes a not inconsiderable proportion of phosphatic and other mineral materials, yet its products, honey and wax, are practically devoid of ash constituents. There remain for discussion, then, only the two classes of organic food matters, nitrogenous and carbonaceous. The former are represented by the pollen, the latter by the nectar collected from the flowers. Now like the contents of every living vegetable cell, pollen consists not of one uniform mass, but is made up by the union of a variety of substances belonging to the class of albumenoids, all very nearly alike in percentage composition, yet differing in their properties, both physical and chemical. Nectar essentially is an aqueous solution of sugar; but this sugar is not, as one might expect, identical with those which, as I have shown, form the bulk of honey, viz., dextrose and levulose, but it in the case of most flowers consists of cane-sugar.

The question, then, will naturally arise, if bees get neither wax, nor in the strict sense of the word honey, from the flowers, where do these products proceed from? How are they made in the body of the insect, and from which of its food materials?

It is often stated, in works dealing with this subject, that among the constituents of plant-cells wax could be detected; and if this were so, it would be but likely that also pollen included a certain percentage of wax, and nothing would have to be done by the bees but to take the ready-formed material wherewith to build the cells. Now it cannot be denied that there are matters among the substances from which leaves and other vegetable structures are built up which closely resemble wax. But vegetable wax, so called, chemically examined, is either found to be no wax at all, but only ordinary fat, that is to say, a compound including glycerine, or a waxy matter allied in composition to beeswax, but yet most materially differing from it in composition. Never yet has a vegetable wax been found to consist of cerotic acid and of palmitate of myricyle. In addition to this fact, we have some interesting experiments of Liebig, who fed bees upon saccharine vegetable matters without allowing them pollen or similar materials, and yet the bees went on secreting wax, much more, indeed, than would by any possibility have been contained in the food matters themselves. So that we can take it to be fully established, both from the absence from the vegetable kingdom of any substance agreeing in composition with beeswax, and from the experiments just referred to, that wax is a secretion, a product formed in the body of the bee itself from other materials.

Let us examine for a moment how the substances most nearly related to wax—namely, fatty matters—are formed in larger animals. Until quite recently it has been assumed that in all cases in which fat is deposited in the body it has either been derived from the fat given with, or from starchy and saccharine constituents of the food. That such is the case in very many instances is fully proved by the fact, that such constituents are the most suitable for the fattening of animals, and that the quantity of fat deposited is greater than could be accounted for if it were assumed that any other food materials were the actual fat producers. By microscopical observation it has, however, been found that fat globules are secreted by cells which are devoid of either starch or sugar, and merely contain nitrogenous protoplasm; and from this, as well from carefully conducted feeding experiments with nitrogenous food matters, it has been established, beyond doubt, that in part, at least, the fat must be formed from nitrogenous substances. It is, therefore, in the case of the bee equally possible, that pollen or sugar is the primary material from which bee-fat—that is to say, beeswax—is derived.

But when we come chemically to examine the composition of fat, we find that those fat deposits, which are evidently derived from carbohydrates, the bulk of the body-fat of pigs or oxen, are composed merely of the glycerides of palmitic, stearic, and oleic acids. But when we inquire into the nature of fat, which is equally certain the product of the splitting up of nitrogenous constituents, namely, the fat of milk, we find its composition to be different from that of ordinary tissue fat, inasmuch as it includes glycerides of a variety of fatty acids of a lower number of carbon particles. Reasoning from analogy, I feel convinced that beeswax does much more nearly correspond in its derivation with butter fat than with ordinary tissue fat, although, as I have had occasion to explain before, it stands on the other end of the chain, inasmuch as it contains the most complex representatives of fatty acids. But when we consider the relatively high temperature obtaining in the body of cows and other milk-secreting animals, and the doubtless far lower temperature of each individual bee, we can quite understand the reason why the nitrogenous matter should, in the one case (that of the cow), be much more deeply affected by the processes of animal oxidation than in the other. I consider then, that the pollen, or rather its nitrogenous constituents, furnishes the material from which the wax is derived, and accordingly should say, that when bees are required to construct new hives, it would be well to supply them liberally with nitrogenous food. When they merely fill cells, which are already constructed, no more nitrogenous matter will be needed than is used up in the maintenance of their muscles and other nitrogenous structures.

Now as to the sugar of the honey. I have already referred to the fact that the sweet secretion of the flowers mainly consists of cane sugar, and that therefore it has to undergo some change before it is stored in the comb in the form of honey. Cane sugar, on being heated with an acid, very readily yields dextrose and levulose; but the bee of course cannot have recourse to such means. How then is this change brought about?

In all digestive processes which take place in the body of animals certain solvent substances, ferments, are called into play, whose function it is to dissolve those food constituents which are solid, and to alter others into such compounds as can readily be absorbed and brought into circulation. Thus, in the case of nitrogenous matter, the *pepsin* contained in the gastric juice readily brings them into solution; in case of starch our saliva exerts a most powerful and almost instantaneous action. In the vegetable kingdom also ferments are numerous, in fact in all cases of digestion and of germinative growth ferments are the most important solving agents. What to the chemist are acids, that to the living cell is the ferment. An analogous change of a very simple nature converts the cane sugar of the flower in the body of the bee into the mixture of levulose and dextrose, which forms the bulk of honey. It follows, that if bees have to be fed artificially, the material which should reasonably be taken would be cane sugar.

To sum up: I have endeavoured to show that both honey and wax are of far more constant composition than has been hitherto supposed; that by reason of this relative constancy it is possible, nay easy, to detect adulteration of these products; that both are true animal secretions, and not merely taken ready formed from the flowers visited by the bee; that wax is produced, in all probability, by the digestion and oxydation of the pollen, while honey is the result of the inversion, by ferment-changes, of the natural sugar of

the flower into the two sugars which mainly make up the product.

DISCUSSION.

Mr. Cheshire, who rose at the call of the Chairman, thanked the lecturer for the learned and masterly address he had just delivered, but added, that although some conference might lead to an assimilation of ideas, he, on more points than one, did not see quite eye to eye to Mr. Hehner. He thought it would therefore be well that he should point out, as food for discussion, in what he differed in opinion from that gentleman. In the first place, he imagined the manufacturing chemist was fast getting towards a position in which he would be able to produce a something which, if not honey, would greatly increase the difficulty of the analyst in giving a positive determination with regard to it. That afternoon he had had an opportunity of witnessing a process for the conversion of starchy matters into glucoses (grape-sugars) which acted so perfectly that but very little dextrin was left, while no sulphuric acid was employed, so that the baric chloride test would cause no cloudiness as we had seen it do as tried upon the sample of mock honey now upon the table. The principle employed is this—the starch, rice, or maize possibly, is subjected to a very high temperature, given by steam in an external jacket, by which the cellulose cases of the starch granules are broken, and when the temperature has fallen to about 140°, so that diastase is not injured, ground malt is added to the extent of two per cent. The whole is then subjected to an air-pressure of forty-five pounds to the inch, by which the converting (hydrolytic action) of the malt is greatly favoured, and in a few hours every trace of starch has disappeared, and a clear syrupy fluid is the result.

All instruction in the method by which spurious honey could be detected were of the highest value, as, undoubtedly, many bottles, which by their labels purported to have come from various parts of the earth, such as California, Narbonne, &c., had really been produced in one manufactory by chemical processes, and quite apart from the industry, in the prosperity of which all present felt so keen an interest. Unfortunately too much of this stuff is really regarded by the public as honey of very good quality.

He wished to remark, in passing, upon a point where there seemed some miscomprehension. It was with reference to the temperature accompanying growth. The lecturer must have referred to flowers only, for was it not certain that during the decomposition of carbonic acid in the atmosphere, and the building up of the tissues, there was a disappearance of sun energy, which actually caused a reduction of temperature?

Those who had the early numbers of the *B. B. J.* would find that at the time that publication was established he (the speaker) had recommended a plan of preparing bee-food quite identical with that spoken of by the lecturer. He had suggested that cane-sugar should be boiled with a certain quantity of sulphuric acid, which could be fixed by the addition of chalk. A known bee-keeper made possibly an error in the method, and lost in one winter several stocks, which he stated he had fed upon syrup made by the recipe given, and consequently a statement got abroad that the food suggested was really death to the bees. This led to a good deal of discussion, and to some correspondence in the American papers against the use of sulphuric acid, which was declared to be fatal to bees by wholesale if the smallest trace of it existed in their food. This dislike of sulphuric acid in America had a moral, and not a scientific basis, and was certainly an egregious error. Mr. Cheshire added that his own bees had flourished upon food made as he had advised, and food so produced consisted of lævo and dextro glucose in equal proportions.

He next would draw attention to the part of the paper suggesting that wax was not produced from sugar or saccharine food. It was now a perfectly well ascertained fact that the fat of butter was produced by the alteration of some protoplasmic material, but it by no means follows that therefore the wax in the bee, which is, although it contains no glycerine, to a large extent analogous to butter, can only be formed, or is even at all formed, at the expense of pollen or nitrogenous food.

In the case of the cow, the protoplasm, by a retrograde metamorphosis, assumes the form of fat, but associated with the metamorphosis is possibly some chemical change towards a substance of higher complexity, which enables some carbohydrate to be made a part of the formative protoplasm. So that the living protoplasm acts as an instrument of conversion, but is not itself destroyed during the change. The question is one of great difficulty, but the position the lecturer seemed to take up is apparently quite disproved by the fact that urea, a product of used protoplasm, is not excreted from anything like the quantity the theory he had applied to bees would make necessary. With bees he should suppose nature worked upon the same physiological lines as in the cow, where, undoubtedly, sugars and carbohydrates generally contributed to the production of butter, but always through the action of living formative protoplasm. In the bee, likewise, sugars, whatever their special kinds, did, by vital action, at length appear as a wax secretion; and that although vital force was expended in the vital act, it was not the vital material which expended itself, but simply made itself the channel through which the chemical elements were arranged in new combinations.

Well, the minds of many would go back to some experiments made long since, in which bees were fed entirely upon sugar and water, and reproduced combs and wax, which combs exceeded in weight the very bees that formed them. That experiment seems to tell against the position that pollen is the substance out of which wax is elaborated, but it does not tell against the position that such secretions as these are formed from the metamorphosis of protoplasmic matter. Then there was the question of temperature in the bee. It would be found that during the time the bees were secreting wax in number, then their temperature stood at about 90 degrees in the mass. In all the larger animals the only conditions under which fat could be produced were rest, high temperature, and nutritious food. In the bees you get the restful condition during the secretion of wax. They cluster together quietly, and there is no doubt when the heat is greatest the largest amount of wax is secreted. It seemed that the wax cannot be secreted in low temperature from the extreme difficulty there is in making the bees do any comb-building when the external atmosphere is chilly.

With reference to the question as to whether in blooms the two forms of levulose and dextrose glucose are found, it would probably require an independent examination of every bloom to answer that with certainty. Honeys vary in their relative proportion of dextrose and levo-glucose according to their origin. When bees have access to some special blooms in quantity the honey will solidify much more quickly than when other sources of supply are open to them.

In fruits, cane-sugar is not found. In blooms cane-sugar in some quantity may be found. In the sweet fruits dextrose may be traced; in acid fruits the levo-glucose. He would be disposed to imagine that these two forms of sugar prevail according to the different power of crystallisation the different varieties of honey possessed.

In conclusion, he had said all he possibly could against the position taken up by Mr. Hehner, but he could not resume his seat without expressing his great admiration of the manner in which the subject had been laid before them. He personally felt under a deep debt of obligation to the lecturer. The experiments were evidently performed by the hand of a

master, who had marshalled his facts and arguments' and explained his conclusions with the utmost lucidity.

Mr. Haviland stated that on that very day, a friend had put into his hands a newspaper containing some statistics concerning the sale of honey, from which it appeared that upwards of 100 tons of honey had been sold at a neighbouring market. He could only say, that if this honey were anything like the samples produced by Mr. Hehner, the sooner the fraud was exposed the better.

Mr. Baldwin inquired whether the manufactured honey was injurious to health.

Mr. Stewart said, that although it was important to know whether the adulterated honey was injurious or not; still there was the fact that it was not really honey, and therefore ought not to be sold as such. Assisted by the lecture which Mr. Hehner gave in the Riding School, at Knightsbridge, a few months ago, and based on some statements he had made there as to the methods of detecting the spurious honey he (the speaker) had gone before one of the associations, which dealt in the article referred to on a large scale, and asked them to submit their honey to a test, so that in future the adulterated stuff might be replaced by genuine honey, and if possible by genuine English honey. He had not succeeded so far as obtaining the test was concerned: but he had noticed that the particular honey which they had previously quoted in their lists, and which he believed to be of the same sort as that exhibited this evening, had now been withdrawn from their price lists. He took this to be an endeavour on the part of the firm to exclude from their own market, at any rate, substances which were known not to be pure honey. He had no reason to believe that these same results would not happen in the case of other firms. He did not think for the purpose of this Association it was important to show that manufactured honey is injurious to health, but only that it was not the genuine article.

The Rev. G. Raynor would like to know the best food to be supplied to bees. Hitherto, all the bee-books had recommended that loaf sugar should be used. Of late the subject had been discussed as to whether pure cane sugar, that is to say, a brown sugar, is not better; inasmuch as honey consists chiefly of cane sugar. On inquiring of a grocer, he was informed that loaf sugar is beet-root sugar, and contains a large amount of grape-sugar, which was considered injurious to the bee. He had been experimenting, and had tried several kinds of sugar, and he thought that known as Demerara, which was brown and crystallised, was the better food. He had found Porto Rico sugar to be very much adulterated. In using that sugar, there always remained a sediment at the bottom of the feeders which emitted a most abominable stench, and looked like oatmeal or flour.

The Rev. F. Sclater said that a short time since, he had had the opportunity of talking with a large grocer, and had asked him why it was that the spurious article was sold in such large quantities, little or no effort being made to obtain the genuine produce of the bee. The reply was that pure honey is too expensive to insure for it a ready sale. If the public can get an article sweet enough to suit their palate, quantity will be considered before quality. He (the speaker) therefore thought it most important for the Association to show the public the advantages of pure over the adulterated honey, and also point out where the adulteration works injuriously.

Mr. Blow wished to know in regard to the relative proportions of levulose and dextrose glucose in pure honey, whether the lecturer had examined many specimens, and especially whether he had tested samples of honey collected from cruciferæ.

Mr. Cheshire begged pardon for again intruding, but wished to call to mind a circumstance bearing very closely upon the question raised at the first bee-show held some years previously: a super of honey was exhibited, which in the opinion of some of the judges was really the product of more than one year's gathering. The reason for that opinion was that the honey in some of the cells was altogether crystallised, whilst that in the others was not crystallised at all. It was considered that the crystallised portion was the honey of the previous year, whilst the non-crystallised was a later production. This conclusion has, however, been since proved incorrect. Many have had the opportunity of seeing the same unusual occurrence take place in a super within the space of six or seven weeks. It was evident that honey would crystallise under some circumstances and not under others, which seemed to point to a very varying amount of crystallisable sugar.

Mr. Hehner, in reply to the observations of Mr. Cheshire, said that the process of converting starch into some saccharine material, to which he had alluded, would yield a product which could most readily be distinguished from honey, even if every trace of the acid employed was removed by skilful manufacture, for the product obtained, consisting mainly of dextrose, and devoid of levulose, would show a powerful rotation of the polarised ray towards the right, and in addition would contain a large proportion of unfermentable gummy matters. At a recent Brewers' Exhibition, a process of preparing wort was shown, consisting in the inversion, in suitable boilers, of starch by means of oxalic acid, which could readily and completely be removed. It was quite plain, therefore, such 'syrups' could and were made free from acid, but as long as starchy matter were employed there would not be the slightest difficulty of distinguishing the product from honey. It was only when cane sugar was brought into use that he feared the chances of detection would be small, although even in such a case he was not without hope to be able to find indications of its nature.

It was perfectly correct, as Mr. Cheshire had stated, that in the growth of a plant heat was not *evolved*, but that it was *absorbed*. This was the case, however, only in such cells as contained green chlorophyll, whilst in flowers themselves no absorption of heat took place, but merely a decomposition of organic matter (formed by green cells), precisely as it would take place in an animal body, and consequently there was evolution of heat.

As to his theory of the difference in composition between wax, with its highly complex fatty compounds, and butter, with much simpler fatty acids, he merely referred to the temperature of the cow and the bee as one of the possible causes. No one, so far, could tell with certainty such and such a fat is due to the breaking up of protoplasm, and this fat to the assimilation of starch or sugar, but of the general broad fact, that in some cases at least fat was derived from nitrogenous matter itself there could be no doubt. Whether in the other cases the protoplasm was merely the medium through which carbohydrates had to pass before being deposited as fat, he was not prepared to say, although he thought it quite likely.

Liebig's experiment merely went to show, and was undertaken to show, that the wax secreted was larger in quantity than any wax that could have been in the food or the body of the bee; it had no reference to the quantity of nitrogenous matter. No balance-experiments had ever been made to show how the nitrogenous matter taken by the bee was disposed of. Such experiments were difficult enough in the case of larger animals; in that of small insects they could hardly with our present means be carried out.

As to the question whether artificial or spurious honey was injurious or not, he should not like to express a definite opinion; he thought that beyond the gummy, unfermentable, and probably indigestible matter contained

in corn syrup, no fault could be found with the imitation article as far as injury to health was concerned. But he thought the question was not one of injury to health at all, but one of ordinary commercial honesty. It was like selling chicory for coffee—chicory being about 4*d.* per lb., coffee upwards of 1*s.* It was simply a question of fraud and cheating, and by looking at it in this light he thought that the hearts of the public could more easily be approached through their pocket than by any consideration respecting health.

The only way to protect the public against spurious honeys, such as he had exhibited and which pretended to come from California and from Switzerland, was to apply to them the same rules of the Sale of Food and Drugs Act which are applied to other articles of food, and he himself, being analyst for several counties, was quite prepared to give certificates as to purity or otherwise on any samples of honey which might be submitted to him by his inspectors; and he only hoped he would soon have a chance of trying in a Police Court the legality of selling stuff such as he had shown.

It had been stated by one of the speakers that fats were the more digestible the more fluid they were. He dissented from that, as castor oil or olive oil, for instance, could not be classed amongst readily digestible fats, and yet were fluid, whilst butter was eminently digestible. He thought the lower the fatty compounds in the scale of fatty acids the more digestible they would be, although it had been found that dogs were capable of digesting compounds as heavy as spermaceti.

No doubt there was some dextrose and levulose in flowers also, but the cane sugar predominated, the two other sugars being merely the after-products due to changes undergone by the cane sugar.

He had not been able by chemical means to distinguish between honey from one kind of flower and any other. He thought it was rather too much to require at present that we should distinguish, say between cruciferous honey and that of fruit blossoms. It was a matter for deep satisfaction to him that he had been able to lay down broad lines of distinction between honey pure and honey adulterated.

And lastly, as to the best artificial food for bees, he thought Mr. Cheshire's advice of treating cane sugar with a little sulphuric acid, and afterwards to remove the same by addition of chalk, to be very good advice: but he himself would prefer either tartaric or citric acids, because they more nearly approached the natural food of the bee.

A hearty vote of thanks to Mr. Hehner for his able lecture was carried amid loud applause.

Mr. Hehner briefly returned thanks, saying that he was happy to think that his investigations, which were solely undertaken from scientific motives, should have furnished useful practical material for bee-keepers.

The Rev. H. R. Peel moved a vote of thanks to the chairman, and begged him to do them the favour of reading a paper in reference to the subject which had been brought before them that evening at a future meeting of the Association.

Mr. Glennie seconded the motion, echoing the suggestion of Mr. Peel.

The Chairman acknowledged the compliment, and promised to carry out the request so kindly suggested by Mr. Peel if he could find a subject which would be sufficiently interesting to the Association.

The meeting then broke up.

AMONGST THE SWISS BEE-KEEPERS.

No. I. Zurich Exhibition.

It was my intention to give a description of some of the largest and best apiaries in Switzerland, and to describe the various hives and appliances I have found in use before saying anything about the Exhibition; but, as a correspondent has called attention to it at page 208 of the *British Bee Journal*, I have determined to give a description of it first, more especially as there are some remarks of his I should be glad to correct, conveying, as they do, an erroneous idea of the Exhibition.

I am afraid 'O. W., Bickley, Kent,' could have only given the bee department of the Exhibition a very short time of the 'few hours he had to spare while passing through Zurich:' and I am not surprised at this, because in the forty-one groups into which the whole Exhibition was divided there was very much to see which was of great interest: and, perhaps, by the time 'O. W.' got to the bee department, which was Sub-division VI. of Group 26 of Agriculture, he was too tired to give more than a superficial glance at the objects exhibited. It is strange that he should have thought the hives much the same as ours, whereas the difference is strikingly great, and the supering arrangements certainly different to ours. The extractors are somewhat different: but it is curious that 'O. W.' should have selected for illustration a form that has been discarded in our country some years ago, and one that was strongly disapproved by the judges and by the leading bee-keepers in Switzerland.* As I spent a week at the Exhibition, and passed most of the time at the bee department, I hope the observations I there made may be of interest to the readers of the *Journal*, and that some of the ideas may be useful.

The Exhibition at Zurich had this peculiarity, that everything exhibited in it was manufactured or produced in Switzerland, and nothing imported was admitted, so that one might without difficulty study the industries of the country. Although Switzerland is a small country, numbering only a little over $2\frac{3}{4}$ millions of inhabitants, and, owing to the precipitous mountains, there is much land not available for cultivation (one-fourth of the whole area) there is no country where the inhabitants are more industrious, and the exhibition was an ocular demonstration of their industry. The Exhibition occupied a large open space on either side of the river Limmat, the public promenade and park being enclosed for the purpose, and the two banks connected by a temporary wooden bridge. Within the enclosure was a series of ornamental buildings allotted to the different departments. The department which will claim our attention is that of Agriculture, Group 26, and especially Division VI., 'Bienenzucht' (Bee-keeping). In this department there were 243 exhibitors, subdivided as follows: honey, 118; wax, 24; single hives, 37; grouped hives or houses, 13; extractors, 12; wax-press, 1; implements, 17; scientific works, 21. Bee-keeping is, therefore, well represented in this department, which was, as it is usually with us, constantly crowded by interested spectators. This department was in a building which was opened on the 1st of May: it is called the Permanent Exhibition, and contains produce of last year and no live bees. This year's produce and live bees were exhibited in a separate department in the gardens, and of which I shall have something to say later. Swiss bee-keepers, by reason of a difference in language, are divided into two distinct branches. Those speaking the German language, represented by the 'Verein Schweizer Bienenfreunde,' who have adopted the German style of hive and its various modifications, and those speaking the French language, represented by the 'Société Romande d'Apiculture,' who commenced bee-

* Being courteously invited by M. Ed. Betrand, the President of the *Société Romande d'Apiculture* and editor of the *Bulletin d'Apiculture pour la Suisse Romande*, to assist at the Congress of the Swiss bee-keepers to be held in Zurich, I accompanied that gentleman and M. de Layens, a prominent French bee-keeper and author of *Elevage des Abeilles*, and in their company spent a very agreeable and, on my part, profitable ten days, which I shall always look back upon with pleasure.

keeping at a later period, and have adopted the more modern improvements of frame-hives opening at the top. Those of the Italian Alps go in more for queen-rearing to supply the demands for Italian queens than for honey production.

Hives.—Amongst these there are two systems of moveable-comb hives, viz., those with fixed tops, and opening at the back like the German hives, and those opening at the top like our own hives. The largest number of hives are of the German pattern. They were in twos, fours, and sixes, and even a larger number were sometimes associated together in one cupboard, or 'pavilion,' as it is here called. The advantages of the German style of hive are that they can be united together in a very small space, placed over each other in three or four stories, or side by side. Some pavilions in the temporary exhibition contained as many as forty-six hives; and if, as in these, a small chamber is arranged at the back the bee-keeper can operate on the hives without fear of robbers. For wintering these hives are convenient, the colonies keeping each other warm. These conveniences are, however, not counterbalanced by the inconveniences not experienced in hives opening from the top. For instance, if you wish to examine the centre frame half the frames must be taken out before you reach it, or if the frame nearest the front is the one desired all the frames must be taken out and put into a temporary hive. This is a drawback, but it enables a person with a limited amount of ground at his disposal to have fifty hives in a space where he could only place two ordinary hives. Some of the other inconveniences I shall have occasion to mention when I am describing the apiaries I have visited. These hives are fitted with different-sized frames, the principal being those of Blatt, the frame having the shape of our own, being long in proportion to its height, and those known as the Barki-Jeker, being about 14¼ ins. high by 11⅛ wide. About ten of these frames are used. Most of the hives are very ornamental in appearance; and to get over the difficulty of losing queens the entrances are painted different colours. Amongst the hives opening from the top were those adopted by the French-speaking cantons. These were the Dadant, which is a modification of the Langstroth: and the Layens, which is a hive containing twenty frames. I shall have occasion to speak of all these hives when I describe the apiaries I have visited, and will then give the dimensions for the benefit of those wishing to try experiments. Our Swiss friends do not go in for honey in the comb, therefore all their hives are arranged with a view to getting extracted honey. There were also two or three modifications of these hives, one being well made of straw, and having bars only instead of frames. All the hives were double-eased and were well made, and as to price they compare favourably with those of English make. There were no hives here costing 4*l.* or 5*l.*, as we see at our shows in England; but the average price of a good practical single hive is about 20 francs or sixteen shillings. There were some capital straw hives made of straw 1½ in. in thickness, and of a size to satisfy even Mr. Pettigrew. There were also some straw hives very much on the model adopted by the British Bee-keepers' Association, only the supers, instead of having sections, were plain flat boxes. Also square boxes about 5 ins. deep, which are used in sets of three or four, and remind one of the Stewarton system. Some rustic hives, made out of stems of trees hollowed out, similar to one exhibited in London at the last show, were also shown. This form is not uncommon amongst the apiaries in the mountains; they have a rustic appearance, but that is all that can be said in their favour. By the courtesy of the officials of the department, I was allowed to open and examine all the exhibits, a privilege not accorded to the general public.

Honey.—In the centre of the department stands a handsome pavilion (shown in illustration, page 235). The honey in jars, of which there are about 300 different specimens, is staged in pyramids at six of the openings: the whole presenting a very neat appearance. A jar of a uniform size and shape was adopted, which made the staging easier. A first prize went to Mr. Theiler, the possessor of 254 hives, for honey of excellent quality. This gentleman last year obtained 6000 lbs. of honey, and has a pavilion containing 115 hives. The varieties of honey were very remarkable, and honey gathered in the valleys presented quite a different appearance and had a different taste to that collected on the mountains. Some of the most delicious honey I have ever tasted without exception came from an apiary situated at an altitude of 6165 feet, the highest permanent apiary in Switzerland, belonging to M. J. Michael on the Bernina. By extracting the honey at different seasons, the Swiss bee-keepers are able to get different sorts of honey, partaking of the flavour of the predominating flowers. There was honey collected from the cherry, dandelion, which is much more plentiful here than with us, clover, sainfoin, buckwheat, and even a honey-dew collected from the fir-trees, which had a peculiar pine flavour. One remarkable peculiarity in the honey is that whereas that collected in the valleys is of a darker colour and highly-flavoured, that of the mountains is lighter and has less of any particular flavour. This latter is owing to the greater variety of flowers the bees are able to collect from on the mountains; and also for this reason the honey has a finer aroma. The jar adopted as the standard is one containing about one pound, and has a glass top resting on an india-rubber ring, over this a white metal ring is fitted, and by screwing it down the honey is hermetically closed and the jar can be placed in any position without any danger of leakage. These jars are made by Siegwart Bros., at Küssnacht. All the labels were uniform and were designed for the purpose. There is no country where better honey is produced than in Switzerland; and the bee-keepers have the advantage of being able, when the honey harvest in the valley is over, to take their hives to the mountains for a second harvest,—an opportunity not frequently coming within the reach of bee-keepers in many other countries. The bee-keepers, as I before stated, go in principally for extracted honey, therefore, as might be expected, the show of honey in the comb was small, and what little was shown was not of good appearance and inferior to any that might be seen at our own shows.

Extractors.—Although there were twelve extractors exhibited, I do not think these would find much favour in England. Most of the extractors were large and heavy, one of the best, however, was one on the American principle, and similar to the one known as the 'Excelsior.' The Swiss bee-keepers extract their honey at the close of the honey season, and do not extract from combs having any brood so that they do not require such precision in their extractors as we do who use the extractor continually during the season. The cages are square and made to take four combs. The sides of some are sloping, and instead of wirework are supplied with cord. This is an old plan that has been discarded owing to the cords giving way when the cages are revolved, and thus there is a danger of breaking the combs. The sloping sides are also objectionable, because the upper part of the cage describes a larger circle than the lower; and as the extractive force is greater at the top than at the bottom the honey is not extracted evenly. The combs should always be placed on end, so that the cells slope in an opposite direction to that in which the cages rotate to obtain the best results. There were others with wooden lattice-work, some driven with horizontal gearing by a handle at the side, some worked by the foot, others by gearing underneath, and some with friction gearing.

There was one with cages like in the 'Rapid,' but

with a revolving cylinder. Most of them had a framework of wood and were evidently meant to be a fixture in the extracting house. There was one extractor of most complicated structure. It was about 3 ft. in diameter, having a large cast-iron framework supporting six arms on which were hung six cages. Above this framework was another cast-iron ring with toothed gearing for the purpose of reversing the cages. The whole thing was so complicated that the wonder is any one could have been found to invent such an apparatus. The cost also was such as to put it out of reach of any but a millionaire, and then an engineer would have to be employed to superintend it. All the extractors I found expensive, and too heavy, with the exception of the one on the American plan.

In my next, I will describe some of the other things worth noticing in the Exhibition.—Thos. Wm. Cowan.

SOME OF THE DUTIES OF A FARMER'S WIFE.

On Thursday afternoon, October 25, Mr. H. M. Jenkins, F.G.S., Secretary of the Royal Agricultural Society of England, and Editor of the Society's Journal, delivered a lecture on the above topic in the Lecture Hall, Dublin. The hall was closely filled by an appreciative audience. Viscount Gough occupied the chair and introduced Mr. Jenkins, who was very cordially received. We extract from the lecture that portion which appertains to bee-keeping:—

Bee-keeping is a source of income to the farmer of no great amount perhaps, but still an appreciable and a welcome addition to either his money receipts or the food supply of his family, especially if he should have young children. Here again the care of the farmer's wife is essential, more particularly in studying the habits of the bees and separating the honey from the comb. I am not competent to give you a lecture on bee-keeping, nor is it necessary that I should do so: for practical demonstrations are now given at the agricultural shows by gentlemen who have made the subject their special study. What I wish to point out is the duty of the farmer's wife in reference to this small portion of the 'agricultural fringe.' Small it really is in the United Kingdom; but in many districts where heather abounds it is a very considerable item in the farming economy, as, for instance, in the heath-land districts of some provinces in Holland.

First of all, there is the relation between the bee-hives and the poultry yard. Keep them as far apart as possible, otherwise the fowls will manage to eat a large number of the bees. Then take care that the bee-hives, like the rabbit-hutches, are well ventilated and protected from moisture and from cold. Bees are no exception to the general rule. They require warmth, but it must not be produced by half stifling them; both cold and damp will kill them, and so will starvation in the winter. Feeding bees in the winter is, in fact, the only expense they entail except that for their hives, which need be only trifling. A very serviceable hive can be easily made out of an American cheese-box. The chief food given by the best authorities is white sugar or barley sugar made into a syrup, with a little vinegar added; and that surely is cheap enough. Then recollect that it is not necessary to destroy the bees in order to keep the honey. A little drowsiness induced by the fumes of tobacco or touch-paper is quite sufficient to enable the honey harvest to be secured.

A very successful lady bee-keeper, Miss Gayton, who lives near Ware, in Hertfordshire, has, at my special request, written to me as follows: 'From my own experience I am sure that almost every cottager might make his bees pay his rent and more; and with five or six hives the trouble of attending to them is not more than he and his wife could find time for. One thing, however, is absolutely necessary for success in bee-keeping, namely, to thoroughly study and understand the habits and requirements of bees, and to bestow on them as much care and attention as would be required for any other pursuit or occupation in order to be successful. Having but small means, I began bee-keeping with the hope of making it a profitable pursuit. I have kept a strict account of every expense, and, as my statement shows, I have found bee-keeping profitable.'

Miss Gayton's very clear statement of accounts shows that she began bee-keeping in 1876 with one stock of bees, and expended 1*l.* 12*s.* 6*d.*, which she charged to capital. She was not in a hurry to make money, so that next year she devoted the honey to increasing her stock of bees to six, and spent 8*l.* 10*s.* 5*d.* in providing accommodation for them, as well as 1*l.* 4*s.* 4*d.* in working expenses. This latter item was, of course, a dead loss, but it is the only loss she has made in the eight years, 1876-83. During the last three years she has had twenty-seven or twenty-eight stocks of bees, and during the eight years she has spent no less than 103*l.* 5*s.* 11*d.* in hives and apparatus of all kinds. Her gross receipts have amounted to 191*l.* 8*s.* 6*d.*, her total working expenses to 34*l.* 12*s.* 5*d.*, so that her net profits came to 156*l.* 16*s.* 1*d.*, or enough to repay her capital expenditure and leave a balance in hand of 53*l.* 10*s.* 2*d.* Of course, the profits in any year vary with the season. Last year, for example, they amounted only to 15*l.* 17*s.* 1*d.*, and this year, with one hive less, they reached the very respectable sum of 60*l.* 7*s.*

Miss Gayton adds that she has found bee-keeping a most interesting occupation, and says further: 'Each year now I hope to gain a still larger profit, for I have hives for as many stocks as I have room for, and all necessary appliances, so that, beyond the annual outlay for food and working expenses, I hope to have no need for further expenditure. I manage and attend to my bees entirely myself; and, for the encouragement of those who dread stings, I may mention that although at first I suffered very much from the effects of a sting, I now experience no discomfort except the slight pain at the minute. I have learnt not to be afraid of bees, but handle them quietly and gently, taking care never to kill a bee unavoidably; and with no protection except a veil, I can do anything with them, with only an occasional sting. With regard to exhibiting honey, although it costs a good deal, prizes gained repay this. (Miss Gayton has spent 8*l.* 10*s.* 11*d.* in exhibiting, and has won 17*l.* 19*s.* 9*d.* in prizes.) But the benefit in every way I consider very great as a means of disposing of honey, and particularly (please note this) from all one learns and sees, and from the help and ideas one obtains from other bee-keepers.'

Miss Gayton further informs me that the bees obtain their honey chiefly from ordinary spring flowers, sainfoin, sheep feed, &c., and later, lime-trees and white clover. The honey harvest ceases when the lime-blossom is over. There is no heather in her district. She has never had any difficulty about disposing of honey, and sells comb honey at 1*s.* 6*d.* per lb., and extracted honey at 1*s.*

The foregoing is a very brief sketch of what one lady—a farmer's sister—has done in bee-keeping, commencing with a single hive, and gradually increasing her stock to twenty-eight hives in the course of six years, and making during the whole period of eight years an average profit of nearly 20*l.* per annum.

Since the delivery of the above lecture, a tabulated statement of the working of Miss Gayton's apiary at Much Hadham, Hertfordshire, from 1876 to 1883, has been kindly permitted to be published.

The account shows that all capital expended—viz., 103*l.* 5*s.* 11*d.*—has been refunded, leaving a clear profit of 53*l.* 10*s.* 2*d.* No charge is made for rent of land, time of superintendence, or interest on capital. The same result

could have been obtained with less outlay under experienced management. For instance, many expensive hives were purchased in the first instance. The plant now consists of twenty-seven stocks (Ligurian, half-bred, and black bees), all very strong, well supplied with sealed stores for winter; in good working order, in thoroughly good hives, with all necessary appliances, and eight extra hives complete for another season.

The pasturage in this district consists of ordinary spring flowers, sainfoin, sheep feed, &c., and, afterwards, lime-trees and some white clover; and honey harvest ceases when the limes have bloomed. No heather. A ready sale can be obtained for honey in sections at 1*s.* 6*d.* per lb., and extracted honey at 1*s.* per lb.

		Capital.	Expenditure.	
(1) Year.	(2) No. of Stocks.	(3) Plant.	(4) Working expenses.	(5) Entry fees, travelling expenses to exhibitions, commission on sales.
		£ s. d.	£ s. d.	£ s. d.
1876* ...	1	1 12 6	... ...	... ...
1877 ...	6	8 10 5	1 4 4	... ...
1878 ...	9	10 12 11	1 13 1	... ...
1879 ...	15	9 7 9	2 12 1	0 2 6
1880 ...	22	11 12 9	3 17 7	2 3 0
1881† ...	28	28 10 0	3 15 8	3 2 6
1882‡ ...	28	15 13 2	6 8 9	1 9 7
1883§ ...	27	17 6 5	6 10 0	1 13 1
		103 5 11	26 1 6	8 10 11
			8 10 11	
			34 12 5	

	Receipts.										
Year.	(6) Bees.			(7) Honey.			(8 Prizes.			(9) Profit.			(10) Loss.			(11) Season.
	£	s.	d.	£	s.	d.	£	s.	d	£	s.	d	£	s.	d.	
1876*		...			...			...			...			...		
1877		...			...			...			...		1	4	4	Bad.
1878		...		8	0	10		...		6	7	9		...		Fairly good.
1879		...		6	1	1	1	0	0	4	6	6		..		Bad.
1880	5	8	0	26	6	5	2	10	0	28	3	10		...		Good.
1881†		...		45	8	5	4	8	0	42	18	3		...		Very good.
1882‡	0	12	6	16	16	2	6	6	9	15	17	1		...		Very bad.
1883§	2	13	11	62	1	5	3	15	0	60	7	0		...		Good.
	8	14	5	164	14	4	17	19	9	158	0	5	1	4	4	
				8	14	5				1	4	4				
				17	9	9				156	16	1				
				191	8	6										
				34	12	5										
				156	16	1										

* Started in autumn by purchasing one stock of black bees in skep. No honey taken, simply increased stock.

† All honey taken before first week in July. Four best hives yielded respectively 87 lbs., 86 lbs., 84 lbs., 81 lbs.

‡ Best hive only 29 lbs. Many hives gave no surplus.

§ After very trying winter and spring early part of honey season was very good; latter part indifferent. Largest produce from one hive 78 lbs.

‖ In addition to bees sold, bees given to cottagers to value of 3*l.* 12*s.*

Foreign.

ITALY.

A Trip of Instruction.—Some time ago I received a very kind invitation from my friend, Dr. Battista Grassi, of Rovellasca, stating that he wished to confer with me upon certain novel and most surprising facts he had just discovered in connexion with the segmentation and subsequent development of the eggs of the queen-bees. I hastened, therefore, to pay the desired visit, feeling convinced that it would be the means of acquiring fresh stores of most valuable information. At all events, I took the precaution of taking with me a piece of nest-comb from an observatory hive, containing a number of eggs just laid by a vigorous young queen; but upon my arrival at Rovellasca I found that the doctor had already several hives in his own garden in which eggs were being constantly laid, and furnished, therefore, all the necessary material for our intended investigations. I will not undertake to describe step by step all that this scientific man has been able to bring to light in these yet unrevealed mysteries of nature. Indeed, up to the present day but very little is known with accuracy what really happens with the internal development, subsequent stages, and formation of the various organs with which after three days the larvæ of the eggs of an insect must be furnished. When completed, the doctor himself will not hesitate to publish the result of his investigations, which he has been following up within the last few months with a care and attention worthy of universal praise. In the meantime, however, it will be sufficient for me to state that, having given his preference to the eggs of queen-bees rather than those of other insects, because of their transparency which is such a useful auxiliary in microscopical researches, the doctor first of all in his process renders the egg solid by an application of hot water. This done, he immerses it into alcohol of another temperature, then it is soaked with the red tint of picrate and carmine, and ultimately it is buried, as it were, into a prism of paraffin by the aid of chloroform. This done the egg is placed in a small machine of great precision, furnished with a most accurate little blade, held in position by a series of numerous little screws, the whole being of a most minute and yet most exact construction. By putting this ingenious apparatus in motion, the little egg is cut across into 180 extremely fine discs. These are afterwards subjected to a most careful microscopical examination without altering the order in which they were cut. The very thought, however, of cutting a queen-bee's egg into 180 equal sections, is sufficient to inspire surprise, yet it is what Dr. Grassi accomplishes with wonderful accuracy. Most surprising were, indeed, the revelations we were enabled to make then and there by subjecting living larvæ to a very powerful microscope; with the assistance of which we succeeded in ascertaining the number of beatings of their pulse-vessel on their back, for which purpose time was kept by a watch working by seconds. After repeated trials made in turn, we arrived at the conclusion that their pulse-vessel beats not more than forty times per second.

Other experiments of no less interest were also made; but of these I do not propose referring in this short report. Dr. Grassi, to whom bee-keepers were already largely endebted for his valuable essays on bee flora, has now added another claim to their consideration, and this will certainly be unanimously accorded him as soon as the result of his present interesting investigations comes to their knowledge.

In conclusion, I may say that I have heard, since my return from my visit, that the doctor had completed his experiments to his entire satisfaction; and it only remains for him now to compile them in a comprehensive form for the benefit of science.—Dr. Angelo Dubini. (*Apicoltore, October.*)

FRANCE.

A general exhibition of agricultural produce and implements under official auspices is advertised for the 11th of February next, and will be held at the Palais de l'Industrie, Paris. The prizes already set aside for the apicultural section consists of one gold, four silver, nine bronze for honey, and one gold, two silver, and two bronze for wax. In publishing this information for the benefit of his readers, the editor of the new French bee journal *Le Conservateur des Abeilles*, whose offices are

at No. 27 Rue Vandamme, Paris, reminds the bee community that he will be happy to attend to any exhibits from his subscribers free of charge.

GERMANY.

According to a notification which has appeared in No. 10 of the *Illustrirte Bienenzeitung*, published in Zurich, a Mr. C. Zoll, of Euerdorf, near Kissingen, is perfecting an invention for producing artificial combs in their natural size, the cells being 12 mm. deep. The result of Mr. Zoll's experiments are awaited for with considerable interest.

The death is reported of Dr. Hermann Müller, of Lippstad, Westphalia, who died lately at Prad, in the Tyrol. Dr. Müller was a well-known authority in every branch of the science relating to natural history, and the result of his studies on the position occupied by the honey-bee in its relation to the flora of the world are already being reproduced in Italy.

AMERICA.

Illinois.—We ascertain from the Crop Reports of Illinois, returned to the Department of Agriculture, August 1, 1883, that the colonies of bees reported for 1881 were 86,633; for 1882, they numbered 131,633. The number of pounds of honey produced in 1881 were 618,947; in 1882, it had increased to 2,791,301: that is, four times as much honey as in 1881, while the number of colonies had not even doubled.

Southern California.—The *Century Magazine* gives the following in regard to bee-culture in Southern California:—'Prominent among the minor industries is honey-making. From the great variety of flowers and their spicy flavour, especially from the aromatic sages, the honey is said to have a unique and delicious taste, resembling that of the famous honey of Hymettus. The crop for 1881, in the four southern counties, was estimated at three millions of pounds: a statistic that must seem surprising to General Fremont, who, in his report to Congress of explorations on the Pacific coast in 1844, stated that the honey-bee could not exist west of the Sierra Nevadas.

'The bee-ranches are always picturesque: they are usually in canons or on wooded foot-hills, and their villages of tiny, bright-coloured hives look like gay Lilliputian encampments. It has appeared to me that men becoming guardians of bees acquire a peculiar calm philosophy, and are superior to other farmers and outdoor workers. It would not seem unnatural that the profound respect they are forced to entertain for insects so small and so wholly at their mercy should give them enlarged standards in many things; above all, should breed in them a fine and just humanity toward all creatures. A striking instance of this is to be seen in one of the most beautiful canons of the San Gabriel valley, where, living in a three-roomed, redwood log cabin, with a vine-covered booth in front, is an old man kings might envy. He had a soldier's warranty deed for one hundred and sixty acres of land, and he elected to take his estate at the head of a brook-swept gorge, four-fifths precipice and rock. In the two miles between his cabin and the mouth of the gorge, the trail and the brook change sides sixteen times. When the brook is at its best, the trail goes under altogether, and there is no getting up or down the canon. Here, with a village of bees for companions, the old man has lived for a dozen years. While the bees are off at work, he sits at home and weaves, out of the gnarled stems and roots of manzanita and laurels, curious baskets, chairs, and brackets, for which he finds ready market in Los Angeles. He knows every tree and shrub in the canon, and has a fancy for collecting specimens of all the native woods of the region. These he shapes into paper-cutters, and polishes them till they are like satin. He came from Ohio forty years ago, and has lived in a score of States. The only spot he likes as well as this gorge is Don Yana, on the Rio Grande River, in Mexico. Sometimes he hankers to go there and sit under the shadow of big oaks, where the land slopes down to the river; but "the bee business," he says, "is a good business only for a man who has the gift of continuance," and "it's no use to try to put bees with farms; farms want valleys, bees want mountains." "There are great backdraws to the bee business, the irregularities of the flowers being chief; some years there's no honey in the flowers at all. Some explain it on one hypothesis and some on another, and it lasts them to quarrel over."

'His phrases astonish you; also the quiet courtesy of his manner, so at odds with his backwoodsman's garb. But presently you learn that he began life as a lawyer, has been a judge in his time; and when, to show his assortment of paper-cutters, he lifts down the big book they are kept in, and you see that it is Voltaire's *Philosophical Dictionary*, you understand how his speech has been fashioned. He keeps a diary of every hive, the genealogy of every swarm. "No matter what they do—the least thing—we note it right down in the book. That's the only way to learn bees," he says.

'On the outside wall of the cabin is fastened an observation hive with glass sides. Here he sits, watch in hand, observing and noting; he times the bees, in and out, and in each one of their operations. He watches the queen on her bridal tour in the air; once the drone bridegroom fell dead on his note-book. "I declare I couldn't help feeling sort of sorry for him," said the old man.

'The highest yield his hives had ever given him was one hundred and eighty pounds a hive. "That's a good yield; at that rate, with three or four hundred hives, I'd do very well," said the old man. "But you're at the mercy of speculators in honey as everything else. I never count on getting more than four or five cents a-pound. They make more than I do."

'The bee has a full year's work in South California; from March to August inexhaustible forage, and in all the other months plenty to do—no month without some blossoms to be found. His time of danger is when apricots are ripe and lady-bugs fly. Of apricots, bees will eat till they are either drunk or stuffed to death; no one knows which. They do not live to get home. Oddly enough, they cannot pierce the skins themselves, but have to wait till the lady-bug has made a hole for them. It must have been an accidental thing in the outset, the first bee's joining a lady-bug at her feast of apricot. The bee, in his turn, is an irresistible treat to the bee-bird and lizard, who pounce upon him when he is on the flower; and to the stealthy moth, who creeps by night into hives and kills hundreds. "Nobody need think the bee business is all play," was our old philosopher's last word. "It's just like everything else in life, and harder than some things."'

AUSTRALIA.

Your *Journal* is a welcome visitor here. Sunny Queensland has its bee-keepers who are emulating the advanced apiarians of Europe and America. We are not ambitious to lead, but are quite willing to keep *close behind* the foremost of the two hemispheres. I see an occasional note from these antipodean shores in your *Journal*. It is highly encouraging to learn that each colony, in Australia and New Zealand, has its progressive apiarians, determined if possible to keep pace with the advancement of modern bee-culture. As a rule we are looking more closely after our American brethren than either British or German, and have a notion that American methods, implements, &c., will prove more suitable to our clime than European. The more advanced among us go in for Langstroth hives, the English Standard and Woodbury being too small for our warm climate: this has been proved by experience.

Except in very wet seasons bees gather honey, and rear brood all through the year with us. Swarming commences in August and continues uninterruptedly until the end of April. The flow of honey varies considerably in different seasons; the bees are mostly dependent upon the Eucalypti and bush flowers for their supply. The introduction of Italians has been a source of anxiety expense, and trouble. We think the difficulties are now overcome, as they are now quite successfully introduced into Queensland and New Zealand. This was effected almost simultaneously by different persons, the one introducing from England, the other from California. Queensland claims, however, to be the first to introduce queens direct from Italy. The first attempt was made in June 1882, when twelve queens were despatched from Bologna, five of which arrived alive. Three of them are still actively employed in supplying eggs for their several hives, and are healthy and vigorous. This was considered a grand success and gave hope that the much-sought-for prize was brought within our grasp. Thus encouraged a second attempt has been made. At the end of June 1883 twelve more queens were despatched from Bologna, to the order of the writer: the parcel was entrusted to the 'Orient Company,' at Naples June 23rd, and after transhipment at Sydney arrived at Brisbane August 10th. Ten queens arrived alive, two only having succumbed, and all the ten queens were successfully introduced to prepared nuclei and are now doing well: hence there need be no further hesitation or doubt concerning the shipping of bees to Australia. The 'Orient Company' have done us good service now on three occasions, and I should certainly advise the employment of that line in this business. I am thinking of obtaining Holy Land and Carniolan queens, in order to test their qualities here, and wish Mr. Frank Benton would undertake to forward them.

Your *Journal* is overhauled at once on arrival for something new, and for the results of practical experiments. How would the Anglo-Cyprian style of hive be likely to suit a hot climate?—CHARLES FULLWOOD, *Brisbane, Queensland, Sept.* 11.

INDIA.

STUNG TO DEATH BY HORNETS.—A strange occurrence is reported from the Central Provinces of India. Dr. Jackson, civil surgeon of Pachmarree, while out tiger-shooting with a friend, was attacked by hornets and received over 200 stings. Erysipelas set in and proved fatal. His friend was saved by the presence of mind of his servant, who dragged him into the jungle, but not before he had been stung severely. In his case, however, no evil consequences followed.

Correspondence.

*** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The EDITOR of the "British Bee Journal." *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

BLIGH COMPETITION.

I have read with great interest, the report of the Judges in the 'Bligh Competition,' and the diaries of the different competitors; but while we must all feel very grateful to Mr. Bligh for his liberality and ingenuity in arranging this competition, I think we must regret that the results were not larger and more varied, and that a larger number of bee-keepers did not come forward to test in this practical way their several theories. I believe that the reason why so few entered the lists, and of those few only a very small number went on to the end, was this that the object and rules of the competition were very little understood.

Now the report on the last competition has been published, this will be no longer the case; and I am confident, that if the experiment were repeated, the result would be much more satisfactory. I propose, then, that funds should be raised for another competition to commence next year, the rules to be much the same as the last, only more clearly expressed, that Mr. Bligh's name should be still attached to the scheme as a mark of our appreciation of his past liberality. I shall be very glad to give 2*l.* to start the subscription.—GEORGE SHIPTON, *Brampton Vicarage, Chesterfield.*

BLIGH COMPETITION.—PURE HONEY.

The published diaries of the competitors in the matter of the Bligh Economic Apiaries Competition have been highly instructive and interesting, and demonstrate the utility of the money so generously given by the Hon. and Rev. H. Bligh for the benefit of the bee-keepers of this country; and it may emulate them to follow close on the heels of our American cousins in the production of pure honey, and the members of the British Bee-keepers' Association should deter them from competing with their adulterated honey. The following article may be of interest. It was taken from the *Pharmaceutical Journal*, Nov. 10th, and *Canadian Pharmaceutical Journal*, Sept. 1883. I doubt the policy of run honey left on hand being valued at more than 1*s.* per lb. when there are so many who would gladly sell at that price.—R. THORPE, *Evedon, 12th Nov.*, 1883.

CANADIAN HONEY.

(*From the Canadian Pharmaceutical Journal September*, 1883.)

The large profits hitherto realised by bee-keepers have induced many others to go into the business, and, consequently, competition is now very keen. It has been said that the quality of honey has suffered thereby, and that the relationship between honey and glucose is of a too intimate kind, but these statements are not borne out by fact. Bees feed on glucose with avidity, and can be made to become mere carriers of this substance to the hive, but this course cannot be economically followed, as dysentery is induced, and the bees are lost. Glucose may be mixed with honey after the latter is taken from the hive, and in warm weather it is difficult to detect, but when cold weather sets in, such honey will not crystallize, or 'cand,' as it is technically termed, and the glucose readily separates and prevents solidification.

There are three leading varieties of Canadian honey, named after the food of the bees in the localities where the honey is collected. These are white clover, basswood or linden, and thistle. They are equal in value, but clover honey has perhaps the preference. It is rather darker in colour than the other kinds. Buckwheat honey is produced here to some extent, but is principally confined to the Erie coast, and is used by bee-keepers for feeding purposes, being too dark in colour, and rank in odour, for table use.

Now-a-days all honey is extracted without heat, by means of a machine constructed on the centrifugal principle, the comb being uninjured. It is replaced in the hive, and, in about four days, if the 'flow' is good, it is again filled by the bees, ready for treatment. In this way the same comb will last for perhaps two seasons, when, if it is dark, dirty or broken, it is melted and made into 'foundation' by a machine devised for that purpose. This foundation is completed by the bees, which put on the finishing touches, and are thus relieved of all the heavy work, devoting their time to pure business. Attempts have been made to reverse matters, so that instead of the bees making wax for man, man makes wax for the bees. Paraffin has been tried as a founda-

tion, and is received with all thankfulness, but, alas! when the heat of summer comes, the foundation melts and the house becomes a ruin. From this it will be seen that beeswax is now seldom or never collected, except for the use of the bees themselves, and Canadian wax may practically be said to be out of the market. The present supply is principally obtained from Africa, where the bee is yet unused to the refinements of civilisation.

DO BEES DURING A JOURNEY EJECT DRY EXCREMENTITIOUS MATTER?

In No. 18 of the Nördling *Bienenzeitung*, 1882, the question was raised as to whether bees eject dry excrementitious matter. Mr. Abbott recommends the packing up of a swarm and despatching it on a journey, in order to become convinced that bees discharge excrements in a dry state.

I had a swarm sent me from Bozen, in the Tyrol, last June (said to be an Italian colony, but which can hardly even be called hybrids). After I had placed the swarm in the hive intended for its reception, I observed that the bottom of the transport box was covered with granules, not unlike grains of gunpowder. I was unable at the time to make out where these granules had come from or what they were, but I have now no doubt that they were the dry fæces of bees.—Spitz, *Giessen*. (*Translated from No. 4 of the Bienenzeitung*. 1883.)

INTERMEDIATE INTRODUCTION, ETC.

During the spring of 1883, I had occasion to confine a number of virgin queens to the hive until after the fifth day. Not wishing to establish fresh nuclei to receive them, or place them in small cages, I designed a wide frame in two parts with a space of one inch between to receive a full frame of comb. One side and the bottom I closed with woven copper wire (twelve holes to the inch), while the other side was made secure simply by being placed next to a division-board, or the wall of the hive. The wire at bottom is all that holds the two sections of the frame together, and therefore acts as a hinge, so that it can be held apart while the comb is being inserted. Thus the young queen, and a limited number of attendants, could be held in readiness either to be liberated to be mated when desirable, or allowed access to the other bees immediately on the removal of the laying queen, for sale or otherwise. By this plan, a queen can be held in hand, where another is to be superseded; and if a comb with hatching brood be placed in the 'receiving-frame' with a fertile queen, she will go on laying, and will not be cramped for room for some days. No time is lost, and the condemned (or other) queen need not be removed until the stranger is enthroned. This plan will be found invaluable where a queen cannot be introduced on her original comb, or when it is not desirable to use syrup.

I have also adopted a queen-nursery in the shape of a two-story hive, with a frame of woven wire between, permitting the heat produced by a strong colony below, to benefit a number of said frames above, containing queens, either with a fair number of bees, or on hatching brood. The queen and bees in each of which can be used to form a nucleus; be added to one, or another hive; and if already fertile can be used to execute an order. Division-boards are placed between, so that each can be removed independently of another.

As a strange coincidence, in the *American Bee Journal* of Aug. 22nd, 1883, Mr. G. M. Doolittle related his experiments with a similar frame during the past season, and speaks highly of the plan as a very satisfactory and safe means of introduction, as well as a capital arrangement for forming nuclei with none but young bees; though in this matter he finds some trouble with the bees rushing out on being released before he can replace the quilt and cover. This difficulty is entirely obviated by my plan of having one side only covered with wire, while the other is closed with an ordinary division-board, which can be gently drawn a little distance from the 'receiving frame' almost without lifting the quilt, and when the excitement has subsided, all can be properly arranged. There is one slight drawback to the use of woven wire, and that is, the bees will of course wax up some portion, but with very little attention this can be removed, and is no great inconvenience.

As a queen nursery, I had previously used broad frames, with no top bar, containing sixteen cages, each with a comb, and perforated zinc set in groves on either side, so that the entire side of the cage could be laid open for manipulation. The little combs were convenient for the queens, and would contain sufficient syrup to last many days without daubing. As the nursery frame had to be placed in the centre of a strong colony, and great care had to be taken that none of the cages fell out during manipulation, I found the method very troublesome, and have quite discarded it in favour of the full-frame nursery. Neither could I depend upon getting good queens by this miniature arrangement. I am not prepared to say that being alone, though in the centre of a strong colony, the mature queen's constitution is thereby impaired; but concluding from practical experience, I am *confident* that good queens cannot be hatched from cells placed in such a position. If the cell is subject to a decline in temperature, even during the last few hours before hatching, the queen receives a shock from which she never recovers, while often she will come into the world with deformed wings; and though Alley has since spoken so highly of the method in his book on queen-raising, I am in a position to state that cells placed in such cages, do not receive the same degree of warmth as is given when the bees can cluster thickly and closely around them, as they are known to do. On the other hand, when the bees cannot come into actual contact with a cell, especially if they are not in proper condition for queen-raising, it is utterly neglected, and therefore receives barely the ordinary temperature of the hive.

Considering these facts, I decided to use none but full frames of comb for preserving queens, so that either a queen or queen-cell should always have more than sufficient bees to give it the necessary and natural degree of warmth, and though taking up more space, I find the full comb more quickly manipulated; it is the standard-frame of the apiary, and therefore convenient for *every* purpose.—Saml. Simmins, *Rottingdean*.

STRAW DUMMIES.—STRAW HIVES.

As no one gives their experience of straw dummies in answer to Mr. Fitch's inquiry in the *Journal* of Oct. 15th, I wish to say that I have tried them for two years, and prefer them to any others. Like Mr. Fitch, I first used string for tying in the straw, but the bees cut the string, and the straw got loose. Cane, cut to the size used in chair-bottoms, is the strongest, and by far the most durable binding material.

I think that no material produces so healthy a hive as straw, and when we see the sad neglect of the majority of skeps, we must admit they possess some advantage over wooden hives to enable them to survive the hardships under which they are 'kept;' and that advantage I believe is to be found in the straw, which is the best non-conducting material that will retain the heat, and at the same time allow the internal vapour to escape.

I obtained a straw bar-frame hive from Mr. Lee, of Bagshot, some years ago, and it has since given more honey than any other of my hives, and in 1882 gave 61lbs. in 2-lb. sections, besides about 12lbs. extracted;

while my other eleven hives only gave about 110lbs. between them.

This has been a good year for South Cambridgeshire, where my twelve hives have given 340lbs., principally in sections.—H. JONAS, *Redcliffe Gardens.*

BURYING BEES.

(*Translated from the 'Bienenwirtschaftliches Centralblatt' by Mr. Frank Benton.*)

Unfortunately, here in the north, in consequence of the unfavourable weather this summer, we will have before us the alternative of decreasing the number of our stocks or else wintering them on short rations. For those who decide in favour of the latter, burying the stocks is to be recommended, and, though this method has been repeatedly discussed in this journal also, I do not regard it as superfluous to mention it here again, since it still finds many opposers, and, improperly carried out, might not only bring damage to the one employing it, but perhaps oblige him also to submit in the bargain to ridicule for burying (interring) his little pets.

The claim that stocks which were buried would suffer, in consequence of the great change of air upon removal from the pits, a greater loss of population than those wintered in the open air, I can, after six years' experience, reject as not valid. On the contrary, it is a fact that buried bees winter with slight consumption of stores and suffer scarcely no loss in population. During the time I have employed this method there has not yet occurred the loss of a stock in the pit, nor, in consequence of the burying, after removal from the pit, although I have repeatedly buried, for the sake of experiment, stocks in straw hives, whose gross weight was 12lbs., hence, which had after the deduction of the weight of the straw hive 6½ lbs., and 2½ lbs. for bees and comb, only 3lbs. in the shape of winter store. Also the observation which has been urged by opposers of this method that stocks which have been buried lose their inclination to swarm has been signally disproved by opposite experiences. In this respect there has been no difference observed by me between bees that had been buried and those that had been wintered in the open air, although it could not be regarded as remarkable should some of the buried stocks not swarm, since it is just the smallest stocks that are wintered in pits. Here in Schleswig-Holstein it has even happened during the past summer so poor in swarms, that the bees of some bee-keepers who had buried all their stocks, have given from alpha to omega numerous swarms, whilst, on the other hand, in apiaries where another method of wintering had been followed, often but six to ten swarms were obtained from thirty to fifty straw skeps. In the vicinity of Angeln a bee-keeper with seventy stock hives received not a single swarm.

The preparation itself for wintering by this method is extremely simple and easily made. Towards the close of November or the beginning of December the bee-keeper selects a spot lying as high and dry as possible, and spreads a bed of straw 40 cm. deep *upon the smooth earth, not below the surface*, and places upon it eight to ten stocks of bees in two rows, the entrance-holes open, and the rows far enough apart to leave an empty space of about 30 cm. between them. A thick layer of smooth long straw is now put around and over the hives, and it is advisable that the heads be put upward. Then at a distance of 50 cm. from the skeps the earth round about is dug out and thrown upon the straw until the latter is covered everywhere. The layer of earth is not to be made too thick, yet in the course of the winter after any heavy rainstorms bare places should receive a few shovels of earth. In this manner a trench is made about the pit, in which the rain and snow-water from the latter collect without doing in any way damage to the stocks of bees, indeed the straw employed remains so dry that it is saved and can be used again later.

Where, however, do the bees get air in such a heap during their captivity of fully three months' duration? Thus many of doubting mind will question. Well, the bee-keeper who has no experience in this direction, or has to do with a heavy marsh soil, may stick two drain-pipes through the layers of earth and straw so that ventilation between the two rows of skeps can be brought about about; but these openings are to be covered with wire-cloth in order to hinder mice from getting in, and during severe cold to be wholly closed.

He who, however, has had an opportunity of seeing how lively and inclined to sting the bees are upon opening the pit in March, even without this additional precaution, will be obliged to confess that during that cold season they 'need *verteufelt* little air,' and will take heart, and this fall bury his bees too.—ADOLF WAHLE, *Neumünster, Schleswig-Holstein.*

SYRUP-MAKING.

As syrup-making seems to be occupying the attention of a considerable number of your correspondents at the present time, allow me to add my way, from which I have never had any trouble with it crystallising.

For early spring or autumn I use four ordinary tea-cups of cold water to four lbs. of sugar, and as much cream of tartar as I can lift on a threepenny piece, and I let it boil until it becomes transparent, which is only a minute or so. As the season advances I add more water, up to double that quantity. You and some of your correspondents advise the use of vinegar and acetic acid. The only objection I have to them is the smell and taste they give the syrup. Stirring continually is not necessary, only occasionally, to assist the melting of the sugar. Boiling after it becomes transparent I consider wasted energy. Mr. S. Simmins says he can manage without acid: I have never had the sugar that would do so. 'Cornubia' says he boils six pounds of sugar and a quart of water rapidly for half an hour: that with me would be burnt sugar, and no mistake. Allow me, sir, to draw your attention to your second reply to Query 721, where you say, 'Do not cease to stir for a moment, or it will burn.' This is a mistake, as it should on no account be stirred after it begins to boil.—JAS. SADDLER, *Forfar.*

[Acid of some kind is certainly necessary to be added to syrup, whether acetic or tartaric or citric is an open question. Mr. Saddler says syrup should on no account be stirred, but he admits that six pounds of sugar to a quart of water boiled rapidly for half-an-hour will with him be burnt sugar. Of course it will if not carefully stirred, as recommended in reply to Query 721.]

QUEENS ACROSS THE ATLANTIC BY MAIL.

'You have done it, my friend! You have done it! . . . . *Probably the first live bee that ever crossed the Atlantic in the mails,*' is what Mr. G. M. Doolittle, in Oct. *Gleanings* (Medina, Ohio), quoted Mr. Angus Cameron as having written to him.

Let us see. Mr. Doolittle says in the same communication that he mailed his queen Aug. 2nd and received Sept. 4th word under date of Aug. 18th of her safe arrival. The following is verbatim from a letter addressed to me, and now in my possession. Notice the date:—

Dear Sir,—We received a queen from you in a mailing-cage. Most of the bees were dead, I think there must have been at least double as many bees as could get food and water. The live ones were in fine condition. The water was not all used and not more than about a seventh of the sugar, so you see there must have been only a few bees the greater part of the journey. I think from twelve to twenty bees would have been ample. Too many bees are worse than not having enough. . . . . I have instructed the boys to send you a cage of bees and you can report, I can send you

some more styles of cages to test to find out which goes best, as one trial is not sufficient to decide the matter.—Yours very truly, D. A. Jones, *Beeton, July 6th*, 1883.

The queen above referred to was an imported Syrian mailed from Munich during the month of June. She had previously stood a long journey by mail, having been prepared according to my instructions in Beyrout, Syria, and had come, *viâ* Alexandria and Trieste, to Munich—a journey which takes eleven to twelve days, the distance being about 2500 miles, part of which is in a *sub*-tropical climate and thus particularly trying to the bees. About thirty workers accompanied the queen, and the food was pure sugar-candy. The water was in a tin bottle with a pin-hole made in the middle of solder to prevent its closing with rust. The form of cage was the same as that I used in 1880 and which was illustrated in the *British Bee Journal* for July 1880, and of which Mr. Doolittle's cage is nothing more nor less than a copy.

Thus the first queen, which so far as I am aware ever crossed the Atlantic alive by post, did *not* come from America to the Old World, but went from this side the water westward, and this queenly beauty travelled all the way from her native land to the New World by post. A second queen, this time a Carniolan, was mailed to the same address on the 27th of July, thus six days before Mr. Doolittle started his queen. Mr. Jones has failed to state how this and several others sent by mail since that date got through. I have among my letters on this subject one from John Hewitt, Esq. Sheffield, England, dated Aug. 7th, 1883, in which is the following sentence: 'I am glad to hear you have succeeded in landing queens alive by post in America. You deserve to succeed after so much trouble and expense.'

The first queen-bee I attempted to send by mail on such a long sea-voyage went from Cyprus to London (nearly 3000 miles) in June 1880, and by reference to the *British Bee Journal* for July of that year there will be found, as above stated, an illustration of the cage then used, as well as a report by Mr. C. N. Abbott, the editor, to whom the box was addressed. He wrote: 'Although buried in the hold of the ship for ten days under tons of mail-matter, the queen and her retinue arrived at our office as fresh and lively as might be wished, but one worker being dead, and not a speck in the box to suggest dysentery or disease.' The same season I sent queens by mail from Cyprus to Germany, which takes even longer. During 1881 further experiments were tried, also with good success. Again, in 1882, from Beyrout, Syria, larger numbers of queens were sent to various countries of Europe, and the success of sending by mail on such long sea-voyages further demonstrated. No other person has aided me so much in determining the conditions necessary to success, the exact causes in the case of failure, &c., nor given me as many valuable suggestions in regard to this matter as the Sheffield gentleman whose name I have already mentioned, Mr. John Hewitt. Had others given as prompt, exact, and full reports regarding queens mailed to them, I would have been much less time determining upon the best method of packing. In reporting in regard to a certain queen I sent him by mail from Beyrout to Sheffield, he said: 'When I opened the box the queen and most of the workers took wing, and the former circled about fully five minutes before resting. I do not partake of your fears that queens will be injured by such long confinement on a journey by post.' At that date I even began to believe I could send them *by mail* from Beyrout to America with no interruption on the way. In this opinion I was encouraged by Mr. Alfred Neighbour of London who had already received a large number by mail from me. Accordingly a number of packets were mailed by French post in Beyrout marked *viâ* Havre. I hoped they would escape touching England. But every one of these experimental packets was unfortunately sent to England with some forty others which were addressed to Mr. Neighbour, and thence returned to me in Beyrout. It seems strange to me considering that in some respects the journey from Syria to England is a more difficult one than that across the Atlantic, no one in America seemed to think the latter could be accomplished. I am well aware the plan has been mentioned in the bee-journals on several different occasions that both Mr. A. I. Root and Mr. A. J. King have come forward in their respective bee-journals with a plan each whereby they felt almost sure of getting queens across the Atlantic by mail in safety. But what's the reason we have never heard further, so much even as a report, of an actual trial of their proposed plans! I have had queens that were eighteen days and even nineteen days by mail from Syria arrived *in fine order!* If after working hard for more than three years on this problem, trying to determine upon those conditions which would give the smallest percentage of losses in sending by mail on long sea-voyages, I have succeeded thus well, I beg leave modestly to agree with friend Hewitt *that I deserve success.*

This year the first queen which I tried to get across the Atlantic by mail was sent to Mr. A. J. King, New York city, on the 31st of May; a second followed June 6th; and a third one was sent June 9th—all imported Carniolans. Mr. King reported these bees all dead, but failed to explain satisfactorily the cause. He also wrote: 'I don't think you can make a success of mailing queens from there.' But I had no notion of being so easily persuaded into giving up the plan. I had hitherto used a simple strip of wood containing three holes opening into each other. In one end candy was placed, while the opposite end held a water-bottle, and the bees were in the middle space, a few air-holes having been made in the sides. In 1880 I used glass water-bottles with a wick; afterwards I substituted tin bottles with a pin-hole; then, at the suggestion of Mr. Hewitt, of Sheffield, I coated the pin-hole with solder to prevent their closing with rust. Wire-cloth and a card confined the bees, and covered them from view. Sugar made into white candy was the food I used. For a time I tried cream of tartar to keep it from graining, but found this very detrimental. The sugar, if pure and properly 'sugared off,' becomes a soft candy, upon which the bees can ordinarily subsist for some time without water. In August the idea came to me of putting the food, to keep it soft and moist, into small tin-boxes closed at the ends, and furnished with small openings on the sides; and cages to hold two such food-bottles, as well as two water-bottles, were constructed in accordance with a model, nearly square in form, furnished by Mr. Hewitt; and in this cage I have succeeded in sending by mail a considerable number of queens alive to America. A few weeks later, however, I perfected a cage in the form of that I first used in Cyprus and Syria, which, with two excellent points, suggested by my ingenious English friend, Mr. Hewitt, I pronounce far ahead of any of my former efforts. I mailed to this gentleman in one of the newest cages a young Cyprian queen raised in my apiary here, and received from him a letter, from which the following is an extract:—

The Cyprian queen came safe to hand on the 24th. I must congratulate you on the improved cage. I consider it far better than my square one. It seems to answer every purpose, and I have nothing but admiration for it.

Having some fifty of the square cages—the Hewitt form—on hand, I concluded to use those up before having a great number of the later pattern made, and it may be of interest to hear some of the reports from them. I select the following:—

Dear Sir,—One queen reached me to-day in most excellent order. I am quite sure that one bottle of water and sugar would be enough. There was but one dead bee in the cage. The others were as lively as though just taken

from the hive. I hope the others will come soon and in as good condition.—Yours truly, E. A. Gastman, *Decatur, Ill., Aug.* 27.

This queen, an Italian, was mailed here Aug. 13th. One mailed on the same day to Pennsylvania brought the following:

Your postal at hand. Contents noted. One cage arrived yesterday, 'Italian No. 3.' Bees all alive but *one worker*, and in good condition. Afternoon mail 'No. 2' arrived. Bees all dead but one worker. Both cages and supplies in good condition. 'No. 1' came *viâ* Havre, other two *viâ* Bremen. Looking for others by every mail.—Yours truly, Geo. H. Rees, *Coatesville, Pa., Aug. 28th*, 1883.

'No. 2,' above referred to, was mailed on the 10th of August, three days before 'No. 3.'

Dear Sir,—The Italian queen you sent by mail Sept. 3rd came to hand Sept. 18th all right; 14 or 15 live bees in the cage with her. Hope you will have as good success in sending the other. Will probably want a number in the spring.—Yours respectfully, Bright Bros., *Mazeppa, Minn., Sept. 21st.*

From a queen mailed Sept 17th comes back to the 'Old Country' the following cheery greeting:

Dear Sir,—The Carniolan queen came to hand in fine condition. The Italian has not arrived.—Yours, etc., Robert Guymer, *East Bethany, Genesee Co., N. Y., Oct. 2nd*, 1883.

Many more letters might be given, some telling of dead queens, some of live ones. But suffice it to say that on the whole the results are satisfactory to me. Though I have sacrificed quite a number of queenly beauties, still some vantage-ground has thereby been gained, and the sending of queens across the Atlantic by mail can now be pronounced a success.

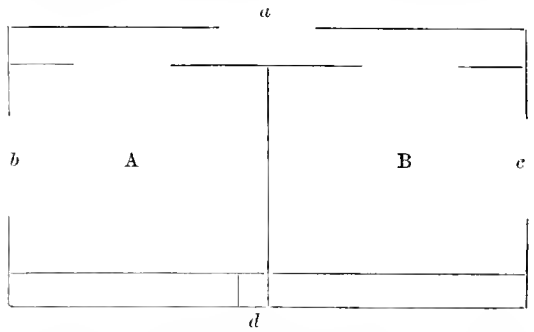
Those queens sent were accompanied by twenty-eight to thirty-five workers each, experience having long ago shown me that the suggestion of Mr. Jones, to put in but twelve to twenty, whilst answering very well for short journeys, is not so good for long ones. This fact has been known to me fully *ten* years. 'Honey in a sponge' is suggested by Friends King of New York City, and Henderson, of Tennessee. I employed that method as early as 1874, *waxing* also the cavities which held the sponges. It works very well for short journeys, but I would not want to trust many queens that way on long ones. Mr. Jones tells me 'just how to do it,' but his bees and styles of cages do not come to hand—not even a word how the queen put up according to a plan he suggested (mailed Aug. 15th) arrived, nor, for that matter, how any of those mailed since the first one in June have arrived.

The whole thing seems just as easy as 'rolling off from a log,' but 'the proof of the pudding is in the eating;' and, instead of telling their *plans*, just let us see some of them put in practice. If they don't make a better showing than the above, then the undersigned, having told them 'how he did it' in June, 1883, will tell them how he proposes to do it in 1884.—Frank Benton, *Munich, Germany, Oct. 22nd*, 1883.

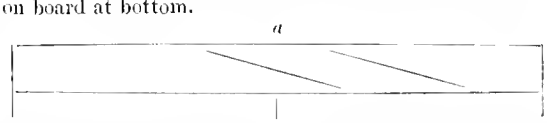
TWIN HIVES.

I notice in a recent issue a contribution on 'Twin Hives;' and as I have lately made one, perhaps a brief description of it will not be without service to other amateur hive-makers. The outside length of the hive is 3 ft. $3\frac{1}{2}$ inches, and the outside breadth 2 ft. A fixed board, $1\frac{1}{4}$ in. thick, divides the hive into two chambers, $18\frac{1}{4}$ in. long, each holding 13 frames.

There is a front entrance at *a*, which can, by a simple contrivance explained below, be made the entrance to either compartment; while there are entrances *b* and *c*, at each end. The whole back of the hive is double-glazed with a confined air-space of 1 inch between the panes, while between the outer-pane and the shutter (which extends the full length of the hive back and is hinged at the bottom to fall down against the legs) there is a space of about 2 inches in width, in which a chaff-cushion can be inserted in winter. Underneath the glass, which reaches to the floor-board, an entrance, 3 inches wide, is cut at *d*, and slopes upwards into the hive; and I can put a small flight-board to this entrance when necessary. In summer, the hive



holds two stocks, entrances being at *a*, *b*, or *c*; while in winter it accommodates four stocks, entrances being at *a b*, *c*, and *d*, and each of the two compartments being divided by a thin board. Each of my stocks will cover about 5 frames in winter, so that I will have over 3 inches for packing next the ends at *b* and *c*. The two weakest stocks will be placed on either side of the centre permanent division-board; thus they will have bees on two sides of them, and thus being kept much warmer, will be much more likely to pass the winter in safety than if kept in single hives. Between the bees and glass I will put a very thin board during the winter, and over the quilts a bottomless box 4 inches deep, packed with chaff. The floor-boards, two in number, are moveable, and have a 1-inch space packed with chaff. The roof (which is made on the Abbott pattern with ridge-board, and two boards on each side, one overlapping the other) is hinged to the hive body with four loose butt hinges, thus permitting the removal of the roof should it be necessary to put on tiers of sections; and it is kept when required in a perpendicular position by a light iron stay attached to the centre divider and the centre gable. There are four 1-inch holes in each gable for ventilation, and plinths are nailed to walls of roof where they meet hive body, and to bottom of the latter. The porches are on the Cheshire pattern, and have side pillars nearly the width of porch reaching to flight-board, thus giving extra protection to alighting bees, and improving, as I think, the appearance of hive. I may now explain how I make the front entrance do for either compartment. Between the outer and inner walls of the front I put a block of $1\frac{1}{2}$-inch wood the width of the space for packing (3 inches), and resting on board at bottom.



In the lower side of it I cut out a piece $\frac{3}{8}$-in. deep and width of entrance, and in such a way that bees entering at *a* can only get into B. Reversing the block I cut opposite side similarly, so that bees entering at *a* can only find ingress to A. Thus by simply lifting out the block and turning it over, I can make the bees in either compartment enter at front. For winter, the two stocks in A enter at *b* and *d*, and those in *b* at *a* and *c*. The hive stands on four stout legs. I think I have given such directions above that any amateur, handy with tools, can make a twin hive of the kind during the winter. I should be glad to hear the opinions of your readers of this hive, what objections (if any) they have to it, and what improvements they would suggest. For myself, if making

another, I should make it at least 8 inches longer, so as to accommodate four very strong stocks. If approved of, I should like this hive to be called 'The Finn Valley Twin Hive.'—APICULA.

DESCRIPTION OF AN OBSERVATION HIVE.

Fig. 1 is a horizontal section of body of hive, and Fig. 2 a vertical section of same with sole-board, the

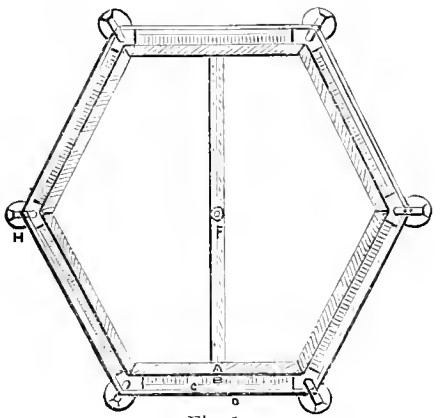


Fig. 1.

letters apply to both figures. Internal diameter of hive 14½ ins., height 14½ ins. The body of hive revolves on a pivot which is fixed firmly in the sole-board, the latter being 2 ft. square and 1½ or 2 inches thick, having a circular passage sunk to allow the bees to gain access to any part of the hive, and from which a tunnel must be formed to the open air. In the centre of the sole-board, the pivot or spindle is firmly fixed, and a midrib is put across the hive the whole depth, in the centre of which the pivot works. This midrib also serves to strengthen the hive body, and it will be better to make

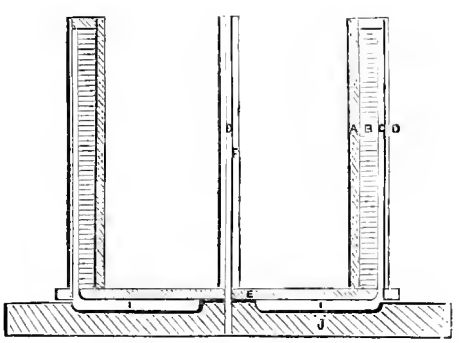


Fig. 2.

it of two boards ⅝ ins. thick, nailed together, the half of the hole for pivot being sunk in each, as it would be difficult to *bore* so small a hole so deep. A few holes through the midrib would allow a passage from one side to the other without the bees having to descend to the bottom. The space between body of hive and glass may be ⅞ in., which will allow ⅝ for comb, and ¼ in. for the bees. The glass is held in place by slips of wood at each angle, these being secured by wood screws, so that the glass can be easily removed if necessary at any time. The inside of the hive can be fitted with frames and covered by a quilt, two entrances being made in the bottom and covered with excluder zinc, as the queen is to be confined to the outside panels so as to be at all times visible, the combs in the panels may be either built in the panels themselves, or a frame set in so that they could be removed for any purpose if required. There might also be openings at bottom or top of outside combs to the inside of hive to serve as winter passages between outside and inside. These would also require to be covered with excluder zinc. In a hive of the dimensions here given the six outside combs, which are single, would be equal to only three ordinary frames, which is small for a brood-nest; but if the combs were double, one side would be invisible, and the queen would probably spend most of her time out of sight, and to make the hive larger it would be too bulky. Of course there would be a cover or case, which could be made as ornamental as might be desired, and which would require to open at top to allow of getting at the inside frames, which may be called the super, for want of a better name. It must be wide enough to allow the hive to revolve, and would also require a shutter in one side to open when any one desired to observe the bees, each panel being brought successively into view by turning round the hive, which would not irritate the bees as much as by lifting off the cover and bringing them all into the light together.

In cold weather there could be a warm cover put over the hive under the outer case; but much protection would not be required if it was in a room with a fire during the winter.

Reference to figures:—A. Body of hive. B. Observation combs. C. Space for bees between combs and glass. D. Glass. E. Bottom of hive. F. Midrib, in which pivot works. G. Pivot on which hive revolves. H. Slips of wood for holding on glass. I. Circular space sunk in sole-board. J. Sole-board.—LITTLE JOHN.

ORIGIN OF BEES.

In Williams' *Ecclesiastical Antiquities of the Cymry* I find quoted from *Leges Wallicæ*, lib. iii. cap. v. sec. 10: 'Bees derive their origin from Paradise; and because of the sin of man did they come from thence, and God conferred on them His blessing; and therefore mass cannot be chaunted without their wax.'

All matters connected with bee-lore are interesting, and I therefore trouble you with this.—J. W. HAWKINS, *Kensington, Nov. 3.*

Echoes from the Hives.

Diss, Nov. 7.—I think the Bligh Competition balance-sheets are very useful and instructive, and calculated to do an immense deal of good; but of one thing I feel persuaded, that to be successful in bee-keeping, the situation of an apiary has much to do with it. Not being satisfied with my present aspect, under trees in an orchard, I think a more exposed situation, with sunlight about them, would be for their benefit. I have now given up to them a small enclosure, about half an acre, and have this autumn sown about half with white clover, reserving the other part for another year's supply, and intend to plant all kinds of bee-flora about them. When I remove the hives I shall place them about one foot from the ground, and eight or ten yards from each other, mostly facing the south-east; but I think they would be better to remain where they are for the winter—being well packed up in outside boxes and well sheltered from the wind—and to remove them early in the spring. Do you approve of this plan? or shall I move them at once? The enclosure is close by just over a low fence. Will you kindly inform me where I can purchase the Canada balsam seed?—G. R.

[You cannot do better than adopt your proposed plan plan. As to time of moving, you may do it at any time during severe weather; but while the weather is as open as it is now as much care is required as in the summer

to avoid loss by removal. Advance the hives about a yard in a direct line each day, or, if the proposed spot is to one side, slew the hives round gradually until the entrances face that way, and then advance. Be careful that the advance, if at an angle to the original position, does not bring one hive to the position previously occupied by another. Canada balsam-seed may be procured from Messrs. Neighbour and others.]

Leslie, Fife.—For a month past we have enjoyed very favourable weather, especially for this time of year; and on many days bees have been flying abroad for an hour or two about midday; but of course there are now no flowers on which they can work. The frosts at night are becoming more biting, and on the morning of the 7th, as much as ten degrees of frost were registered four feet from the ground. Further inquiries confirm my last month's report of the weakness of hives this winter compared with last, and the loss of stocks during winter will I fear be great. Young queens in many cases were never mated owing to the continued wet and stormy weather in June and July, and old stocks and second swarms in some cases became quite tenantless before end of August; robbers having given the final touch to them. Rainfall for October, 3·7 ins.; last year, 3·9 ins.—J. L.

Passage West, Cork, Nov. 7.—The past season may be summed up in a few words. Nothing but rain. Bees unable to gather stores to keep them alive to the autumn, let alone through the winter. Very few got any honey, except in a few instances in favourable localities, where as much as 40lbs. were got. Several have been boasting of getting as much as 60lbs. The impostors and swindlers fed their bees up with syrup to store in the sections. I have heard of disaster on every side, and bees will be at a premium next year. The dealers here gave 1*s.* 6*d.* per pound for section honey, and sold it at 2*s.* 6*d.* Bees busy bringing in pollen last week of October and first week of November.—J. Crosbie Smith.

Co. Waterford, Nov. 7th.—The season here has been a bad one for honey; but all my stocks except two are able to winter themselves, and all are strong. For some days the bees have been working hard on the ivy. Examining a hive to-day, I found a quantity of honey and pollen freshly gathered.—D. E. L.

Munich, Germany, Nov. 7.—At this moment I am very busy preparing for a second journey to Cyprus and Syria, which I shall undertake this winter for the purpose of bringing back a lot of full colonies and nuclei containing selected choice queens. As drones fly there in February and March, in favourable seasons, I shall raise 50 to 100 of the queens, which I shall bring back with me.—Frank Benton.

NOTICES TO CORRESPONDENTS & INQUIRERS.

W. H. Radford, *Nottingham.—Flour-cake.*—Pea-flour cake at this time of year is a mistake, as the consumption of nitrogenous food requires cleansing flights, which in chilly weather leads to loss of life. Remove it and give it plain cake for the present, say until middle of February, if open weather. The sample you send is a little burnt, but not so much so as to be injurious. It will keep through the winter, if stored in a dry place. You say you put the cake over the quilt; you should put it under it, between it and the frames.

Novice, *Chesterfield.—Winter Passages.*—Since your stocks are prepared for winter, do not again disturb them in order to cut the winter passages. If you have confined the bees to about as many frames as they can cover, they will do well without passages. 1. Place two strips of wood three-quarters of an inch thick, across the frames, beneath the quilt, six inches apart, each three inches from the centre, and reaching to within three inches of the sides of the hive, covering with several thicknesses of woollen. Be careful to secure these covers closely to the sides and ends, so that there may be no escape of heat. Following these directions the unsealed stores will do no harm. 2. *Unsealed Honey.*—Yes; they will consume the unsealed honey first, and without injury to themselves, especially if the weather continues mild.

R. B., *Newbury.—Moving Bees.*—You may remove your bees at any time during the winter months, taking advantage of dull cold weather, when the bees have not been flying for two or three weeks. No precautions are necessary except to make the removal towards evening, and to be careful not to shake or jar the hives. Disguise the old stands as much as possible, by clearing away any remnants of their former abode or position.

Wm. Abbott, *Kilmacthomas, Waterford.—Transferring and Wintering.*—It is much too late to transfer to bar-frame hives. We advise you to retain the skeps until the swarms issue, and to place the swarms in frame-hives. Three weeks after swarming, drive the bees from the skeps, and transfer combs, honey, and bees to frame-hives. If the skeps are full of honey why speak of feeding? Probably the bees have too much food already. Leave them alone entirely; only be careful to protect your skeps from extreme cold and wet. We are ourselves wintering several strong stocks in skeps which are bound around with hay-bands, and well protected with waterproof roofs, and we know, from long experience, that in no hives do bees winter better than in skeps thus protected.

F. Eccles, *Wakefield.*—The bee enclosed is an ordinary English black bee. The flower sent is not sufficient to fix the species. It is a *Matricaria* or an *Anthemis.* These genera are rather puzzling, and the species of both are much alike. If our correspondent will forward a more perfect specimen, *i.e.*, leaves and flowers, we will have much pleasure in determining the species.—A skep will winter in a cellar as safely as a bar-frame hive: but we would prefer that it should be placed in the open, with the precautions noted in our reply to Wm. Abbott.

G. Freeman, *Chesham, Bucks.—Candy.*—Candy for bee-keepers can, we believe, be had from Abbott Bros.; see also, Mr. Saddler's advertisement in this issue.—*Superfluous Combs.*—It is desirable that frame-hives should have all those combs removed which are not covered on both sides by bees.—*Bee Flora.*—We have recently given (see p. 182) a list of honey-yielding plants for spring; please refer to it. The amount of space required for bee-pasture will of course depend on the number of stocks and available space.

N. I. L.—There is no necessity for banishing the flowers mentioned from the garden. The instinct of bees will be sufficient to cause them to avoid them.

J. Walker, *Greenock.—Drones in November.*—The presence of drones so late in the season is indicative of queenlessness, and, possibly, the presence of a fertile worker. *Covering Floor-boards.*—Covering floor-boards with felt or flannel during winter is a refinement which we do not consider will be appreciated by the bees.

T. Rose, *Radcliffe-on-Trent.*—To convert round-top hives into flat ones it would be necessary to cut off a few inches, and sew the raw edge with string. Then proceed to adapt it to the super-case as directed in the Association's tract 'Skeps' (price 1*d*). The cutting off the top need not occupy above five minutes, and a puff or so of smoke would render the bees quiet during the operation. The bees would forthwith refix the disturbed combs. This might be done in the spring.

*** *In consequence of the space occupied by our report of the Conversazione we have been obliged to economise space by giving simply the Replies to Queries, and to postpone several Communications.*

THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

[No. 135. VOL. XI.] DECEMBER 1, 1883. [PUBLISHED FORTNIGHTLY.]

Editorial, Notices, &c.

ASSOCIATION DEFICIENCY FUND.

The appeal made on behalf of the deficiency fund in our last issue has produced the following results :—

Additional Life Members: Col. E. Smyth; C. H. Hodgson, Esq.; C. P. Ogilvie, Esq.; J. N. Bower, Esq.; A. H. Heath, Esq.; Mrs. Thos. Wain; Col. Pearson; His Grace the Duke of Buckingham and Chandos; and H. Bostock, Esq.

Donations in addition to those acknowledged in our last issue :—

	£	s.	d.
W. Cartmel	2	2	0
Col. Picton Turberville	1	0	0
J. Noble	1	0	0
Miss E. Preston	0	10	6
Rev. F. S. Sclater	0	10	6
W. H. Phillips	0	10	0
Col. Merrick	0	10	0
Isaac Rodham	0	7	0
G. H. Gadd	0	5	0
J. C. Arber	0	5	0
Miss Octavia Peel	0	5	0
F. Leete	0	5	0
A. Rusbridge	0	5	0

The following members have promised to double the amount of their subscriptions next year, viz., Mr. J. C. Arber, Miss E. Preston, and Mr. A. G. Radcliffe.

It will be seen by comparing the above with the list published on the 15th November that above 60*l.* has already been contributed in Donations and Subscriptions for Life-membership towards clearing off the debt of 150*l.* We miss at present the names of many well-known supporters of the bee-keeping cause; and we trust that these will come forward liberally before the end of the year, so that an equilibrium may be restored to the finances of the British Bee-keepers' Association.

All persons who have sent to the Hon. Secretary Life Members' subscriptions or donations in response to the Appeal lately issued, and who have not yet received acknowledgments of the same, are requested to communicate at once with the Hon. Secretary, Rev. H. R. Peel, Thornton Hall, Stony Stratford, as in consequence of a railway accident on the 21st ult., it is probable that some letters have not come to hand.

The Hon. Secretary of the Warwickshire Association writes as follows :—

'I shall be happy to have my name added as a life-member of the British Bee-keepers' Association. I will lay your appeal before my Committee, and feel sure they will be glad to offer what assistance they can from the Warwickshire Association. So much help has been afforded by the parent Association to the various societies since founded, that there can, I think, be little doubt but that *all* will in a smaller or greater degree, desire to assist an Association that is carrying on so great a work, especially amongst the artisans and agricultural labourers; and I sincerely trust your appeal may be liberally responded to.—JAMES NOBLE BOWER.'

ECONOMIC APIARIES COMPETITION.

I am very glad to learn, as a result of the Economic Apiaries Competition, that a desire has been expressed for its repetition; and I hope I may be allowed through the columns of the *B. B. Journal* to thank Mr. Shipton for his kind remarks, and especially for his offer of 2*l.* to start a second competition. 'The proof of the pie is the eating,' is an old proverb and a very true one. For the purpose of gaining converts, it is of no use to tell big stories, and to talk of the number of tons of honey produced in a single apiary, or of hundredweights from a single hive. It sounds very wonderful, and people believe you to a certain extent; but they mostly think there is some secret behind, something which does not appear on the surface. I often speak of having seen 112 lbs. of honey in and upon a hive of black bees at one time, and this in an inferior honey district. There *was*, however, something behind in this case, for many of the supers and sections were already filled with the last year's comb; and although the honey was all gathered fairly enough in that one season, yet without the added comb, the total produce would probably have been at least 30 lbs. less.

In these competitions, however, we have not only *bonâ fide* results, but also records of the ways and means by which they have been obtained. The reports of the Competition and the journals of the competitors bring home to the outside public, as well as to beginners in the art, what may be and has been done. *Apropos* to the object aimed at by

our competition, and dating back to a period long before it was thought of, we have before us an account of the successful results of Miss Gayton's apiary, which during the seven years it has existed, according to the report published in the *B. B. Journal*, shows an average annual return of 1700*l.* per cent on the capital 1*l.* 12*s.* 6*d.* originally invested; or, to put it in more intelligible words, shows that, starting with and not exceeding a mere nominal capital of 1*l.* 12*s.* 6*d.* it is possible within seven years to build up an apiary of thirty stocks, which with plant, &c., is worth about 100*l.*, and during that time have put 60*l.* into your pocket. But this is not all, there is the prospect of a net annual income of about 60*l.* for the time to come. Miss Gayton's experience, which alone I am sure will give a vast impetus to bee-keeping in this country, is just that sort of practical logic which we hope to draw out more and more by economic competitions.

I shall be very glad to add 2*l.* to the fund started for another trial.—Henry Bligh, *Hampton Hill, Middlesex, Nov. 17th*, 1883.

BEE-CULTURE IN INDIA.

In previous numbers of the *Journal* will be found frequent references to the action of the Indian Government to ascertain the present condition and future prospects of bee-keeping in that vast country. In the present number (see p. 267) will be found an exhaustive summary of the several replies of the local governments and administrators to the circulars issued by the Agricultural and Revenue Department of the Government of India regarding the varieties of honey bees indigenous to India, the results of previous efforts towards their domestication, the extent of the demand for honey, the quantity produced, and the prices realised. The summary we have been favoured with is from the pen of Mr. James Douglas, of the Indian Telegraph Department, who was the originator of the inquiries that have been made.

In November, 1881, Mr. Douglas (then on leave in England) entered into a correspondence with the Secretary of State for India, for the purpose of eliciting information with a view to the promotion of bee-keeping in India. Mr. Douglas had studied the industry in connexion with the practice of England and Germany; and he considered that it would be beneficial to the country in which his lot was cast if the advanced methods of bee-culture of these countries could be introduced into India.

The Secretary expressed an opinion that the subject on which Mr. Douglas desired information appeared to him to be of sufficient practical importance to engage public attention, and forwarded to the Indian Government a copy of the correspondence that had taken place. The Indian Government, coinciding with the opinion that had been expressed, thereupon requested the local governments and administrators to furnish it with such information as might be available on the subject. The inquiries thus promoted produced a large number of interesting reports from forest and district officers, and other persons whose attention had been directed to the subject. The broad conclusions derived from these reports were—(1) That several varieties of honey bees are found in every province of India where there is sufficient forest or jungle, and that the honey of some of the varieties is good and in considerable demand; (2) that efforts have been successfully made in the hills by Europeans to domesticate Indian bees, but that bee-culture is only practised by natives in the very rudest way; (3) that it is very doubtful whether the bee could be domesticated in the plains owing to the dearth of flowers during the three or four months preceding the rains; (4) that in Southern India persons have given up all attempts to domesticate the most common variety of bee found there on account of its intractable nature.

It was considered, therefore, by the Government that bee-keeping was an industry that could not be reckoned as being of great importance; that it could only be followed advantageously in the hills where flowers abound during the greater part of the year, or in the vicinity of forests where bee pasturage was equally plentiful; but that in the populous country of the plains it would be unpractical. With such ideas it is not to be surprised at that the Government came to the conclusion that there was no occasion or call for action on their part.

The *non-possumus* of a government is frequently the signal for individual effort and private enterprise. The promotion of bee-keeping in India must depend for the future on the energy of private persons; and we cannot believe that the interest that has been evoked by the publication of the investigations that have been made will be suffered by them to lie dormant. We have no details that can lead us to the amount of honey collected in India; but from the Trade Returns in the year 1882 we note that 1025 cwts. of wax were imported into Great Britain from the British East Indies; but when we contrast this with the amount imported from Japan in the same year—namely, 7337 cwts.—we conceive the result to be the reverse of favourable. If the cultivators of the soil would consider bee-keeping to be a useful auxiliary to their functions, they would find in attention to it a rich return. India, with its broad plains, its extensive forests, and its flower-clad hills, offers a vast field for the enterprise and energy of bee-keepers. We hope to see India making a marked progress as a honey and wax exporting country.

We tender our best thanks to Mr. Douglas for the interesting communication he has forwarded to us; and as he has such good reasons for looking with complacency on the work he has already accomplished, we trust he may be able to look with hopefulness to the future.—G. H., *Ealing*.

USEFUL HINTS.

The extraordinary mildness of the season hitherto has caused bees to be unusually active, very few days have there been on which they could not fly for a few hours. The result will be found in the

exhaustion and premature ageing of the bees, leading to rapid spring dwindling, and, what is of more importance to be now thought of, undue decrease of stores.

Many stocks put into winter quarters apparently well stored will have already consumed so much as to leave them hardly enough to carry them on until the advent of spring. We may expect a spell of severe weather to fall upon us any day, and there is no knowing how long it may last. Therefore, it would be as well while the weather continues open to examine and ascertain the present state of the stores, and, if likely to become short, give some barley-sugar. There is danger amongst all the recent talk of 'candy' of our old friend and mainstay being forgotten. If properly made and used it is a most useful article. But the proper way to use it is not to put a great cake of it over the frames, cover with the quilt, and leave it to deliquesce at its own sweet will, and run in sticky streams down the combs. It should be given in a small tin or float feeder over the feeding hole, and closely covered up to conserve the heat. After examination, which need be only by raising the quilt and observing how much sealed stores are left, be sure and replace the quilt carefully so as to prevent draught. Look to roofs, and remedy any leakage, however slight. If there is dampness of the quilt it may be owing to want of ventilation in the roof. The remedy is obvious. Reduce all entrances, if not already done. Look to the stands, see that they are firm and sound. The least shaking of the hives causes constant uneasiness to the bees, as does also the tapping of branches of shrubs and trees on the hives by the wind. Any branches liable to touch the hives should be cut off or tied in. Skeps should have the entrances contracted. A nail or two driven into the floor-board will keep the mice out. The feed-hole should be closed by a wisp of straw or a bag of chaff, and the roof should not rest closely upon the straw, but be raised a little above to allow of ventilation.

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

Committee meeting held at 105 Jermyn Street on Wednesday, November 14th. The Rev. E. Bartrum in the chair. The minutes of the previous meeting were read, confirmed, and signed. The balance-sheet for the month of October was read.

The Finance Committee presented their Report, recommending the payment of several bills, amounting to 48*l.* 2*s.* 8*d.* The Assistant Secretary presented a statement of accounts relating to the sales of diagrams, pamphlets, &c. Resolved, That the thanks of the Committee be given to the Assistant Secretary for the complete manner in which the statement had been prepared. A letter was read from the Secretary of the Royal Agricultural Society of England requesting the Committee of the B.B.K.A. to prepare the prize-sheet for the bee department of the Royal Agricultural Show to be held at Shrewsbury in 1884.

It was resolved that in future 1*l.* to be charged to County Affiliated Societies for the hire of the bee-tent at all extra shows other than those allowed free in accordance with the privileges of affiliation. The Secretary reported that there were several members in arrears with their subscriptions. It was resolved that application should be made forthwith for these outstanding subscriptions. The next Committee meeting was fixed for Wednesday, December 19th.

ROYAL AGRICULTURAL SOCIETY'S MEETING AT YORK.

REPORT OF THE JUDGES OF HIVES, HONEY, &c.

The exhibition of bee-hives and bee appliances showed a decided advance upon former years, many of the hives entered for competition being excellent in construction as well as reasonable in price. Bee-keeping is extending so rapidly in every part of England, and its benefits, not only in increasing the supply of food raised in our own country, but also in aiding the fertilisation of flowers and fruits, are now so generally recognised, that the winner of a prize at the Royal is certain to sell a large number of hives, and the competition in consequence is very close. The amount of honey exhibited was not so large as it would have been had the Show been held later in the season, and scarcely afforded an index of the large harvest that has been secured this year. The public interest in the various Bee Appliances, Manipulations, and Lectures in the Bee Tent, was very great. Many persons had travelled long distances to learn all they could about bees, and remained in the Bee Tent almost all the day. Instances are becoming common of tenant farmers who are adopting bee-keeping as a part of their ordinary occupation, particularly if they grow white clover, mustard, or other plants from which the bees obtain honey in any quantity, and some of these are said to secure good profits. The increase in the supply appears to be creating a demand, and as the honey obtained under modern and improved methods is more attractive and more marketable, there is less difficulty in securing a sale at a remunerative price. The assistance rendered by this Society to the British Bee-keepers' Association enables the latter to bring the benefits of rational and modernised bee-keeping before a class of the community whom otherwise the Association could scarcely reach, and in this way the agricultural interest is directly benefited. The Addresses delivered during the Show at various intervals each day by experienced lecturers, and their practical illustrations of the management of bees, together with their explanations in reply to inquiries, diffuse an amount of information, and moreover create an interest, which justify the hope that before many years bee-keeping in England will not be inferior, either in skill or means, to the art as practised either on the Continent of Europe or in America.—EDWARD BARTRUM, M.A., WILLIAM N. GRIFFIN, JOHN M. HOOKER.

EAST OF SCOTLAND BEE-KEEPERS' SOCIETY.

The Annual meeting of the Society was held in Lamb's Hotel, Dundee, on Saturday 10th November; there was a good attendance of Members, and Mr. Wm. Raitt, Blairgowrie, in the absence of the president, Mr. John Stewart, Arbroath, was appointed chairman. The following is the Annual report:—

'The eighth year of the Society's existence, which is just closed, has been perhaps the worst which the bee-keepers of this district have ever experienced, the continuous wet, stormy weather in July and August completely prevented any honey being gathered. From

this cause the Annual Exhibitions in Arbroath, Forfar, and other districts, had to be abandoned.

'At the Show held in Dundee in the beginning of September, about 700 lbs. of honey was exhibited, and considering the season, the quality was excellent, and the whole of it was readily sold at good prices.

'Notwithstanding the drawbacks bee-keepers have experienced, it is satisfactory to find the Membership has not decreased to any extent, it now numbering 144.

'Next year the Dundee Horticultural Society are to have an International Show here, and the bee-keepers have determined to offer a large and attractive schedule. Lord Strathmore has again honoured the Society by continuing to remain its Hon. President, and has kindly offered for competition a Silver Medal, and several ladies and gentlemen have promised donations to assist the Prize Fund.

'The Committee would impress upon all the Members the necessity of trying to increase the list of subscribers, either as Members or Patrons, so as to ensure a successful Exhibition for 1884. The Committee have to thank the Dundee Horticultural Society for their liberality in again giving a donation of 20*l*.'

The Treasurer's report showing a balance in hand of 15*l*. 6*s*. 10*d*. was also gone over and approved of.

The meeting then elected the committee of management of 1884, when Mr. Wm. Raitt, the oldest bee-keeper in the district, and one of the originators of the Society, was unanimously appointed president. Mr. J. W. Warden, Dundee, was re-elected secretary and treasurer.

The meeting then took into consideration the Prize Schedule for next year, and agreed that the Society should offer 50*l*. in prizes in addition to the medals of the British Bee-keepers' Association, and the Silver medal presented by Lord Strathmore: and the Committee were instructed to draw up the schedule accordingly.

The Show is to be held in conjunction with the International Exhibition of the Dundee Horticultural Society on 11th, 12th, and 13th September next.

NOTTINGHAM BEE-KEEPERS' ASSOCIATION.

Viscount Newark has consented to be the President of this Association.

AMONGST THE SWISS BEE-KEEPERS.

No. II.—Zurich Exhibition.

Miscellaneous.—A great number of small things were shown, such as uncapping knives, smokers, knives for cutting out queen-cells, wax-smelters, very similar to those used by us. The smokers were on the Bingham model, but I found in most the bellows small and springs weak. There was one smoker which was a decided improvement on the ordinary ones. By means of a bayonet catch the barrel could be detached, so that the smoker could be easily carried in the pocket. Dubini's Solar Wax Extractor was also shown, but the heat of the sun in England is hardly powerful enough to make it available in this form with us; if, however, it is double-cased and has two plates of glass and all the woodwork painted black, and made in the form shown by me at our London show, the heat of the sun is sufficiently concentrated to melt wax rapidly. The feeders are very simple, being merely tin trays which are pushed through an opening made to admit them at the bottom of the division-board, then two or three bottles are inverted on to them, and as they slope a little the syrup runs out as fast as the bees take it up. A simple lamp for burning salicylic acid for fumigating hives having foul-brood is also shown; but of this I shall have more to say when I am treating on foul-brood. Pincers for taking out frames, pipes for fumigating, metal masks for protecting the operator from stings, a wax-press, and a host of other small articles too numerous to mention. I must not forget to mention a brush shown by M. Fusay for brushing bees off combs, as it is one particularly adapted for the purpose. It is about 15 inches long and has a handle, the width of the brush, being $\frac{3}{4}$ of an inch, and is made of fine hair such as is used for hat-brushes, the hair being about $1\frac{1}{2}$ inches long. The brush being so long, all the bees can be swept off a comb at one stroke. A large quantity of comb-foundation was shown made on Root's machine, the colour varied very much, some being nearly white. Wax was exhibited of all shades of colour; but there was an improvement in the way of showing that we might very well adopt. All the specimens were of a uniform size and cast in one particular form of mould.

The walls of the building were prettily decorated. At one end there was a fresco-painting on the wall representing a landscape, and in the foreground a tree on a branch of which hung a huge swarm, and at the foot of the tree a proportionately huge skep lay ready for its reception; to the right stood two gigantic straw hives with the bees pouring out in large numbers to visit the flowers of the neighbouring fields. On the other walls were hung photographs of some of the large pavilions and different noted apiaries. There was a photograph of a pavilion containing 300 hives belonging to M. Blatt, a veteran bee-keeper, whose acquaintance I had the pleasure of making. There were also the portraits of the great Swiss bee-keepers, F. Huber, to whom we are indebted for the moveable-comb hive; Gerster, whose name is known in connexion with the Swiss wax-extractor; P. Jacob and J. de Gelieu, well-known authors, and many others. Large diagrams by Prof. Dodel-Port of Zurich, illustrating the fertilisation of flowers by bees. A very interesting case representing all the uses that wax can be put to was also placed against the wall; and this contained no less than twenty-two different articles, viz. 1, glass engraving; 2, painting in wax colours; 3, wax modelling; 4, bleached wax; 5, cosmetique; 6, wax for waxing thread; 7, corking wax; 8, preparation for waxing floors; 9, wax salve; 10, wax plaister; 11, solution in benzole; 12, various forms of wax tapers; 13, cold cream; 14, mould of teeth; 15, anatomical preparations in wax; 16, meerschaum tubes; 17, collar glazed with wax; 18, wax matches; 19, comb foundation; 20, candles; 21, medals; 22, photography. Very few people have any idea that wax can be applied so extensively in the arts and manufactures.

A large case containing the library of the Swiss Bee-keepers' Association is shown, and in it there are a number of valuable and rare books treating on bees and bee-keeping. Amongst the bee-flora are worthy of notice two albums shown by M. Kramer, one contains flowers arranged in groups; there were the flowers of the pastures on one page, garden flowers on another, hedge flowers, forest flowers, and mountain flowers on others. The other album contained about 100 sheets, and on each sheet there were three or four specimens beautifully dried and the colours well preserved. Each flower had its botanical and German names attached, with time of flowering and remarks as to quantity and quality of the honey produced. There were also statistical tables, showing at a glance time of flowering of every plant, period of greatest honey production, and duration of bloom. A case by the Honey Pavilion exhibited by M. Theiler contained forty-five specimens, about 3 inches square of comb from one day old to sixteen years old; also queen-cells in every stage, as well as drone-comb; wax foundation in process of being worked out, and larvæ in spirits at different periods of their development.

Amongst the objects most worthy of mention are some tables by M. Kramer, containing observations taken during three years, and which display an immense amount of labour and patience. The observations were taken three times daily, and record the state of, 1, the moon; 2, temperature; 3, barometer; 4, hygrometer; 5,

state of the weather, such as wind, dew, frost, storm, snow, rain, amount of clear sky, amount of clouds, sunshine; 6, rainfall; 7, amount of light; 8, honey collected; 9, consumption. The temperature, barometer, and hygrometer, were represented by vertical lines, wind by letters, and the other observations by various coloured signs. The amount of honey collected was represented by a thick red vertical line, and the amount consumed by a thick blue line, the difference, being the actual gain in honey, was shown by a black line. M. Kramer hopes that by a series of such scientific observations carried on in a systematic manner for a number of years the laws which govern the secretion of nectar in flowers may be discovered. It is a great work requiring an immense amount of labour, and is of the greatest value to bee-keepers. Will not some of our English bee-keepers who have the opportunity to do so undertake a similar work, as it is only by carrying it on in various parts at the same time that anything satisfactory could be arrived at? It is a work entailing an immense amount of labour, and should only be attempted by those who are prepared to carry on the observations systematically.

The last scientific work, and at the same time the most interesting, is that of Dr. A. de Planta. The results of seven years' arduous labour are here represented in two small cases to be seen on the left of the Honey Pavilion. Dr. de Planta has been experimenting for seven years with a view to determining the constituents of honey, as this he found different to the nectar in the flowers, and to determine what part pollen played in its production. A small bottle contained pollen which had been got from hazel blossoms, and thirteen other bottles, the different constituents of which this pollen was composed of. Dr. de Planta explained to me the difficulty he had in getting a sufficient quantity of pollen, and it was such as would have deterred many a person from prosecuting the experiment. The same difficulty was experienced in getting sufficient nectar; this was collected by means of a pipette and sealed up at once in tubes to prevent the formation of bacteria. The constituents were displayed in six bottles, but amongst these no coagulated albumen was found. He next wanted to find out the constituents of the saliva of bees, but how to get this in quantity was the difficulty. Knowing that saliva dissolved easily in glycerine, he pounded a large number of heads of bees in a mortar and dissolved the saliva with glycerine, from which he was able afterwards to separate it. He found that by means of the saliva various substances in the nectar were converted into other substances which only appeared in honey. These were contained in eight small bottles; the constituents of honey were in twelve bottles; and the experiments proved that honey undergoes a certain change in passing through a bee, and that the saliva plays a very important part in producing this change. Coagulated albumen is found in honey, whereas it is not found in the nectar. It was stated above that great care was taken to seal the tubes when the nectar was collected to prevent the formation of bacteria. What, then, prevents the honey from decomposing? Dr. de Planta found formic acid in honey, and this, as is well known, is a very powerful preservative. Bee-bread was next experimented upon, and found to contain pollen, honey, and saliva. Experiments on wax showed that it contained cerotic acid, myricine, and saliva, so that it is evident that saliva is a very important element in the produce of the hive. Bees were fed on various substances, such as honey alone, sugar and honey, sugar and yolk of egg, sugar alone, sugar dextrine, and rose water, gelatine and sugar; and the combs produced from these substances were shown; they were of various colours, those from sugar being the whitest; next came the produce of gelatine and sugar; 3rd, honey and sugar; 4th, honey alone; and those produced from the other substances quite brown. In another case were twenty-four specimens of wax from various countries, and all these without exception melt at a temperature of from 63 to 64 degrees Centigrade. Such is the work of Dr. de Planta contained in two small cases, but of immense scientific merit. I am sure that all bee-keepers must feel indebted to him and M. Kramer for their work and must wish them success in their further researches. The whole of the arrangements of the Bee Exhibition were entrusted to their care, and to their indefatigable energy may be attributed its success. Well might it have been expected from two gentlemen who could devote themselves to such work as I have described from the pure love of the science.

There was a portion of the garden of the Exhibition devoted to living specimens of bee flora. These were planted in borders and were labelled. When I visited the Exhibition most of the plants had done blooming, but the plants were still there. The collection was brought together and arranged by M. Kramer, whose albums of bee flora I mentioned before.

In my next I will describe the Temporary Exhibition and the Congress of Swiss Bee-keepers.—THOS. WM. COWAN.

BEE-CULTURE IN INDIA.

I send a review of the Government reports on bee-keeping in India. It was contributed by me to an Anglo-Indian journal, and contains all that is of value in the Government papers. I may mention that a rupee is two shillings, and a seer two pounds. The objection of bees to bad odours is proved by Mr. Hunter's experience; all but one of his servants pass the hives without accident. The sweeper (scavenger), who belongs to a caste not cleanly, is attacked, and is the only servant who gets stung.

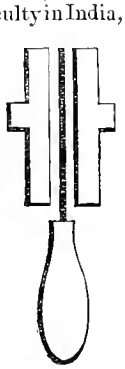
British bee-keepers may be interested in the details of my experience in India. I find the native bees very hard-working, and not worse in temper than European bees. Their stocks are naturally light, and they swarm naturally, sometimes to destruction; but this, no doubt, depends on circumstances, and can to a certain extent be dealt with. In large cavities I have found seven combs and good stocks, but hollows in trees, &c., are frequently irregular and small, so that swarming is encouraged. I find they swarm in the hot season. The rains correspond in bee economy to the European winter: the bees go out, work, and breed slowly, but have no drones, and often starve. The wax-moth is very common at this season, and has to be looked for and exterminated. I find it rather in the hive than on the combs, but no doubt it would be very destructive under some circumstances, probably with stocks dwindling during the rains, with combs almost empty and uncovered. I believe the native bee, *A. Indica*, can be cultivated quite as easily as the European bee. I have two hives doing very well, and I expect to get something from them in the cold (?) weather. As these bees are so common, and therefore swarms are very easily obtained, doubling would probably be a good way of treating them. My best swarm was captured within a few yards of my office-door, where the bees had clustered naturally. They were driven up into a hive by the use of the smoker.

As to the imported bees, they arrived last November, and I saved two queens with a handful of bees; one stock was reduced to two or three hundred bees. I reduced the combs, and gave food and water. The result was doubtful for some time, as the queens put several eggs in each cell. The bees destroyed these; then the queens ceased to lay; then tried again, and so on. One queen flew out, but settled on my white jacket, and was, of course, replaced. At last I got the hives full of bees, and they did very well indeed; but I could get no drone-wax, the queens being young ones. They ultimately built drone-comb, and then the tropical

rains came, and they produced no drones, as the rains decreased, I added drone-foundation; it was built out. Feeding got it filled several times with eggs, but they were again and again destroyed, notwithstanding the feeding. One of the queens stopped laying, and I could not find her. Concluding she had died, I gave drone-eggs and brood from the other hive; but the bees promptly destroyed the eggs, and I have failed in getting drones up to the present. The bees did well during the hot weather so far as breeding was concerned, filling the hives, but now (Oct. 20) they are out on the flight-board doing nothing, while the native bees are working as hard as possible. I find the Italians are not bringing in pollen, but the country bees are. If, however, I give a little pea-meal to the bees on the flight-board, they at once collect it, and they immediately all go inside. I hope by continued feeding to ultimately multiply stocks and breed queens. I think they ran short of pollen in the hives, as they have very little indeed, and the pea-flour may do good. To preserve the drone-eggs I shall have to try artificial swarming, and give the drone-eggs, when I can get some, to a queenless hive.

The following may be useful to some of your readers:—I find a hive standing on its flight-board as sometimes made allows rain to enter the hive, and battens round the hive warp in the tropical extremes of weather. I find also rain drives through the ventilating hole as usually arranged, and in the usual double-walled hive small insects get between the walls when the wood warps, and they cannot be exterminated. My latest hives, therefore, are made without the usual battens; the top fits over the body, and rests on two battens fixed to side of body, and forming convenient handles for lifting body; the outside of body in a similar manner passes over edge of bottom board. The ventilating holes are made close under the eaves, not in the gable as usual. The floor-boards are not fixed. I strongly object to fixed boards, as moth collects in the joint between the box and board. I place a newspaper on the ground, lift off the body and place it on the paper, clean the board, and replace both on stand. With fixed bottom-board I could not of course do this. I do not enclose the space between the body-boxes; I leave this open at top and fill it with any convenient suitable material, as newspaper, straw, chaff, cotton, &c. They can then be emptied if necessary. I found thatching hives with mats, grass, &c., did not answer, as it made the covers very heavy, and ants and other vermin infested the thatching. I found a good way to thicken the roof was to put a few nails or screws on each side inside, and fill up the roof to a level with the sides with newspapers kept in by string passed round the nails or screws. This is as good a protection against sun and cold as thatching, without the disadvantages. Paint, and the boards an inch thick, are best for outside.

Hornets kill some bees, and even take them from the flight-board; while a fair-sized flight-board is necessary in India, it should not be too large. Ants are the great difficulty in India, they get into the top of the hive immediately the bees are fed, and help themselves from the feeding-bottle; while I once nearly lost a stock from an attack of large black ants. I place my hives on posts, with a water-vessel round the post, and a lashing passed over hive to hold it against wind. I object to the saw-cuts in frames. I fix the foundation by means of a small instrument as sketched—a handle with a piece of steel wire in is provided with a small wooden cylinder shown in section; the cylinder is loose, and can therefore be reversed; one end is used for sections, the other end for frames. To use this put the cylinder in water, stand the frame upside down, and lay the foundation on it; put the wet cylinder on the handle, and run it along with pressure, when the wax will be fixed; the fore-finger must precede the runner, and keep the wax from rising into creases. If considered necessary, a thread or two may be used to keep the sheet in centre of frame.



In transferring wild bees to hives (generally a troublesome operation, requiring to be performed quickly and well, or the bees abscond, the existence of brood notwithstanding), I use wire fixers, and find them answer perfectly. They are of thick wire, and I seldom use more than two or three to each frame. Of course I do not fill the frames, but put each comb in a separate frame, as found in the natural nest transferred.

I find candy is unsuitable for use in India; when most wanted, *i.e.*, during the rains, it will not keep, but absorbs water, however carefully made. I also find that flour-candy leads to rejected flour on the floor of hive, and this encourages vermin. I find the ordinary feeder has the disadvantage that the bees must be driven down, or the feeder will crush bees when placed on the frames. As I do not use a smoker excepting rarely, when absolutely necessary, I prefer a feeder standing, raised ¼ in., above the frames, so that it can be put over bees. For slow feeding I use a feeder made as follows: Take a wide-mouthed bottle with a good stopper and somewhat arched bottom, drill a small hole in centre of bottom, and the feeder is complete. To use this feeder, smear the stopper with tallow or syrup, place on feed-hole, fill with syrup, and insert stopper tightly. Of course, more than one hole may be made in the bottom, but this is not desirable, as this form is only suited to stimulative feeding, not to very rapid feeding; also, if several holes be made the feeder could not be filled on the hive. This feeder can be lifted up, placed on a flat surface, and replaced without crushing the bees or driving them down, and with the bees feeding continuously, the stopper may be removed, and the bottle refilled quickly without lifting the bottle, so that any unskilful person may be entrusted to replenish the feeder without disturbing the bees.

Although, no doubt, shutters for contracting the entrances are convenient, I find them a complication which can be done without. I use earth, paper, a piece of wood, a leaf, or other handy material to contract hive entrances when necessary. No wasp has yet been found by me in either of my hives, but I found a wasps' nest and a bees' nest in the same cavity in a wall. Ants are very troublesome, but I make them useful. I place empty hives on the ground for a few hours, and the ants clean them of all small vermin, small ants penetrating every crevice.

The combs of *A. Florea* are frequently built when for some time in the day they are exposed to the direct rays of the tropical sun. Their comb has a strong backbone of resinous matter, and I found the native bees' combs do not melt so readily as the Italian combs when exposed together to the sun. I shall examine by-and-by the properties of native wax. The European bee-keepers reject the resinous matter of their combs. I am of opinion this could be utilised. It is exceedingly insoluble, and, like copal, may need to be roasted or otherwise treated to render it soluble. The Burmese use the resinous matter from a species of Trigona to caulk their boats. This I have seen, and it greatly resembles the matter from wax-combs. It is prepared by boiling in water, and kneading hot with earth-oil. I think it more than probable that it might be used in Europe if properly treated somewhat after the manner of copal in making varnishes, of course using a cheap solvent, such as earth-oil, kerosine, or other material found suitable. It could be utilised by destructive distillation, but less profitably. Direct solution is impracticable, but solution after proper treatment, allowing time, the application of heat, &c., should reduce comb refuse to a mass, which

could be kneaded and used for some purposes, even if it could not be made into a cheap varnish.

I strongly commend the above to the Association, and will give the results of my experiments when I can find time to complete them. I have no doubt whatever that bee-keeping with the native bees is practicable in the plains of India, as well as in the hills. I am getting specimens of the bees of different parts of the country for microscopic examination, with a view to a correct entomological classification and description. If the Association can let me have dead specimens of the several varieties cultivated in England, and of *A. fasciata*, I should be much obliged, and would send specimens of *A. Florea*, *A. Indica*, and *A. Dorsata*, of which I have several varieties.

I have succeeded in exciting an interest in bee-keeping, and already I have been able to do much towards assisting several persons to commence. I have lent books and distributed pamphlets and appliances, and given advice to beginners. There can be no doubt whatever that there is a great future for bee-keeping out here, the Government verdict notwithstanding. Instead of the European winter we have tropical rains, during which the bees can go out, when the weather *is* fine, and slow feeding may be necessary. We have two harvests, spring and autumn, and in swarming time can get wild swarms for the trouble of capturing them, while hollow trees, cavities in walls, &c., shelter innumerable stocks, to be had for the trouble, if they can be got at. In capturing, the great difficulty is the fact that if roughly used the bees abscond, bees being more independent and self-reliant apparently than in Europe. The presence of brood and caging the queen will not prevent absconding in some cases. I find the safest way is to cut down the tree and remove the log to where the hive is to stand, keep the bees in the log for a fortnight, then transfer as quickly and as dexterously as possible. Driving is commonly impossible. The combs have to be transferred with many bees on them; hence the great value of the fixers. The natives use earthen vessels as hives; these vessels, being very fragile, cannot be used to drive from. The combs are also commonly very fragile, so the earthen pot has to be broken, and the combs cut out, and transferred according to the ingenuity of the operator; and transferring under such conditions has by no means the simplicity of transferring from a skep.—J. C. Douglas.

From the 'Pioneer' (India.)

'Not having met with bee-hives in the plains during a long residence in India, it occurred to me that bee-keeping, as carried on in Europe and America, might be introduced into India with great advantage to the rural population. When in England I wrote to the India Office for any available information of the subject of Indian bees and apiculture. This led to the Secretary of State addressing the Government of India, and the Government of India sent out a circular to local governments and administrations, asking for information on the subject. The local governments having collected information and furnished reports, these reports have just been issued, with a Resolution of the Government of India on the subject.

'The reports contain much information of interest and importance; but necessarily, from the nature of the subject, the writers in most cases not having the necessary knowledge as bee-keepers or naturalists, erroneous opinions are expressed and some facts of primary importance are so incompletely stated as to be of little value. Other reporters have given opinions which, however they might apply to limited areas, are inapplicable to the whole of the plains of India.

'It appears the honey-bee is found all over India, some reporters mention six or seven kinds as indigenous to their locality; in all cases the bees are mentioned by native names, and as these differ, and the descriptions do not include the generic characteristics, the species cannot in most cases be identified, and in some of the cases, where scientific names are given, they are evidently wrong. It appears probable that varieties of the unicomb bees *A. Dorsata* and *A. Florea*, and the multicomb bee, *A. Indica*, are common over the greater part of India, Burma, and along the Himalayan slopes; that some variety of *A. Indica* is the kind generally cultivated. This bee is similar in habits to, but not identical with, the European bee, as some have supposed. The bee being so generally diffused is evidence that it might be cultivated with profit over the greater part of India. Very generally it is kept by the natives in the villages in various parts of the Himalayas and the Punjab Hills and Kashmir in the walls of houses; in the Beas Valley hollow logs are used as hives, and moved from place to place to get the bees pasture; in the Khasia and Jaintia Hills hollow logs are used as hives and these are thatched with grass. In Pegu logs are used, the ends being covered with skin. The Nepalese, Bhutias, and Lepchas about Darjeeling use hollow log hives. Although it is reported that the natives of Lower Bengal do not keep bees, I find they do keep them in earthen vessels inserted into the walls of the houses, and I purchase stocks of bees as I require them from this source. In many cases the bees are enticed into vessels or hives by putting these in suitable places during the swarming season. In other cases, as in Kashmir, the hives are stocked by capturing swarms in baskets, as in Europe. The Khasias capture the queen and tie her with a thread or hair to a stick on which the bees swarm, when they are carried away and hived by the owner or sold. The queen is tied in the hive to prevent the swarm absconding. On the Punjab Hills the bees are fed, as in Europe, on sugar and flour during cold weather. Even the best native attempts are very rough and cannot be very productive. The honey is taken in most cases by using smoke to intimidate the bees; in some cases, with the smaller bees, they are driven out by blowing into the cavity. A powdered plant is blown into the nest in Ganjam. The honey of the larger wild bees is usually taken at night, torches being held under the bees. In some places there is a belief the honey must be taken during full moon, or the bees make away with it; in other cases the idea is they make away with it if it is not taken on a dark night, as disturbed bees always fill themselves with honey if possible. It is obvious how these notions arise. In some cases the small kinds are merely brushed off the combs, in others the comb is put into a bag and and all the bees destroyed. In many cases the face of the man taking honey is covered, and in Assam ginger is chewed to keep off the bees. The honey is harvested at certain times of the year, but it is noteworthy that there is usually more than one honey harvest during the year. In Haraoti and Tonk the honey is taken at the end of April and beginning of May; Coorg, May and June, but stated to be harvested several times a-year; North-Western provinces twice, May and October; Sibsagar, twice a-year, February and October; Khasia Hills, three times, twice in spring, and once in autumn; Kashmir, twice, June and November, or December; Darjeeling, March, April, and October. Near Calcutta I find honey is taken just before the rains in June. It is very difficult to arrive at the quantity of honey yielded by one stock of bees, and in comparing figures the identity of the bee is doubtful. In Burma three pints of honey and 30 to 35 tolahs of wax are taken from a bee building in hollow trees. In the central provinces 20 to 25 seers of honey and 5 to 6 seers of wax are taken from a bee found in white ants' nests. 4 to 5 seers are taken in May, and 2 to 3 in October, in the north-west. In Coorg, 5 to 20 seers. In the Wynaad *A. Indica* is said to yield 6 lbs. three or four times a-year. In Trichinopoly districts a bee building in hollow trees yields 4½ to 18 lbs., and in Ganjam the yield is 12 Ganjam seers. In Indore the yield is

16 to 24 seers for the large bees, and 8 to 12 lbs. for the smaller.

'A Burma bee, half an inch long, yields 24 lbs. of honey and 5 lbs. of wax, another 1 to 2 lbs. of wax and two quarts of honey. In the Khasia Hills six seers of honey are taken. But these figures are very rough approximations; in some cases the proportion between wax and honey is apparently incorrect; and in no case are there data to draw any conclusions upon as to what these bees would yield if properly treated. The best European varieties when wild in America *yield scarcely* anything as compared with what they yield when properly treated. In some places the larvæ of the bees are eaten; they are said to taste like cream. The Deputy Conservator of Forests, Salween Division, vouches for their being a most delicate dish when roasted and served on toast. If a taste for the roasted maggots should spring up, India would have the honour of supplying a new article of diet, and a profit would attach to an improvement in apiculture not thought of hitherto by the best authorities.

'It is probable the bees swarm at more than one season of the year. More informaton is required on this most important point. In Sibsagar they swarm twice, viz. in March and October; in the North-West they swarm in April; in Lower Bengal I find they swarm in May or earlier, and I captured a fine swarm of *A. Indica* the first week in June. The treatment of the honeycomb harvested is abominable; the product is necessarily very inferior, and keeps badly unless specially treated; the pollen must in many cases give the honey an unpleasant flavour; and the fact that it was expressed with dirty hands or through a foul blanket, and that a vast number of larvæ were crushed with the comb, must make the honey unacceptable,—to Europeans at least; while the knowledge that it is very generally adulterated must seriously impair the demand amongst natives. The methods employed are squeezing the comb in canvas bags or in a blanket twisted by two persons; squeezing by the hands, or in very few cases by means of a kind of large lemon-squeezer, considerately introduced by some gentleman in the Forest Department to prevent the filthy practice of hand-squeezing. As the honey is often not ripe, and is commonly foul, it does not keep; it is boiled thicker, or till scum ceases to rise, or it is kept in new earthen vessels with a very little wax. The rationale of the earthen vessel is probably the evaporation of the watery constituent, and consequently ripening, as it is called in Europe. Boiling impures honey. In Ganjam the comb is not cleared, but broken up and sold no doubt—a dirty mess of wax and honey together. Wax is purified by boiling the comb and letting the water cool, or by squeezing the hot mass after boiling in a coarse cloth. The price the honey and wax fetch differs widely. In Coorg the honey fetches only 2 to 3 annas a pound; the wax sells for 5 annas 9 pie to 8 annas 8 pie, and is exported to Madras; at Kotagiri (Nilgiri Hills) honey is 12 annas to 1 rupee a bottle. In British Burma honey varies from 2 annas to 10 annas a pound, and wax 12 to 14 annas. Mr. Hunter, of Landour, tells me he gets 12 annas a pound, and the demand is far greater than the supply. A description of honey, believed to be made from lotus flowers only, is used by native physicians in eye affections, and fetches a very high price. In many cases honey and wax are exported from the places where procured, as in the cases mentioned above; *e.g.*, from Mergui wax valued at Rs. 750 and honey valued at Rs. 8000, the product of wild bees is exported yearly to Moulmein and Rangoon; about 100 maunds are exported from Ulwar into the British district of Gurgaon, &c. The revenue on the collection of wild honey is very trifling. In Coorg it is about Rs. 270 a year, but several forest officers think the revenue from this source might be increased. In Kashmir all honey on government tracts is the property of the Maharaja. Rent is paid to the house-owners who maintain the hives; when lands are leased a cash value is fixed and added to the government share of the revenue due; when the government share is collected by division of harvest, two-thirds of the honey is appropriated by the state, and one-third by the zemindar. It is stated that honey in Coorg is sometimes unpalatable or injurious when a particular weed is in flower; it is also said to be occasionally acrid and injurious or poisonous in the Wynaad. It is possible there is some exaggeration in these accounts. In Germany, although bees are kept most extensively in many parts, no case of the kind has ever been recorded, so that a German poet has written, 'Bees take the sweets and leave the bitters behind;' in France, at certain seasons, in some localities the honey is somewhat bitter, but this honey is given to the bees, and the honey for sale is taken before this season.

'The stings and tempers of some Indian bees are reported as very bad indeed, but my limited observations have not confirmed these statements, and such statements to be of value must be made by persons experienced in handling bees, and who know what to expect when stung. The European bees leave behind their sting and poison-bladder; the pain may go away in five minutes, or may last very much longer; the swelling may be trifling or considerable, and last two or three days; the severity depends on the part stung, and how often the person has been stung before, as after a number of stings the pain and swelling become trifling, and on the state of the bee at the time, as some stings are far worse than others. The temper depends on the weather, state of honey harvest, &c. I find *A. Indica* fairly good-tempered and easily handled, but its sting on my person is somewhat more severe than the sting of the Italian bee; this may arise from the fact that I am more inoculated with the Italian bee's poison. *A. Indica* is much smaller than *A. Ligustica*. Mr. Rita, who kept Indian bees at Shillong, and Mr. Hunter, of Landour, who keeps the Hill bees, agree in not finding fault with the temper of the bees. In India, as in Europe, there are absurd superstitions connected with bees. The Burmese think a swarm settling near a house unlucky; in England it is considered lucky. Possibly there are other superstitions as gross as the English one, that if the owner of the bees dies, and the bees are not informed by tapping on the hive, the bees will die. I was gravely told of a case of this kind in Essex. I found the unfortunate bees had been starved to death, but I could not convince my informant.

'As usual there are several remedies for stings. One remedy is bruised tamarind leaves boiled in water: this is said to reduce the swelling. The Khasias apply pan leaf, which is said to allay the pain. These applications, particularly the latter, are too generally applied to such purposes for their specific virtues to command credence. I doubt if these remedies are likely to supersede the American one in general use, which is, "Forget the sting as quickly as possible."'

(*To be continued.*)

LECTURE.—A lecture on bees and bee-keeping was delivered at St. Agnes, near Truro, on Tuesday, 6th inst., by the Rev. C. R. Sowell, a member of the Cornwall Bee-keepers' Association. The district of St. Agnes is a good one for heath, and we hope that this lecture will be a means of giving a fillip to bee-keeping amongst the inhabitants. Mr. Sowell treated on the natural history of the honey-bee, its physiology, and the relation of bees to flowers, Mr. Sowell drawing particular attention to this last as one of the many illustrations of the unity of nature, and of the manifold wisdom of the God of nature, which in its entirety was past finding out. The chairman, Mr. Rouse, exhibited a super of honey, and the lecture was illustrated by diagrams, and a model hive supplied by the Hon. Sec. of the Cornwall Bee-keepers' Association.

AMERICAN HONEY.

The following Table shows the Market Price of Imported Honey, Stocks on hand, and Imports of Same each Year since 1872.

HONEY IN CASKS, containing from 2½ cwt. to 5 cwt., from Chili, Mexico, West Indies, Peru, &c. This Honey reaches London so varied in quality and condition, that Merchants have each parcel, as it arrives, sampled and 'piled,' according to colour, flavour, and freedom from foreign matter—'Pile 1' being the best in all these respects, and 'Pile 3' the poorest. The Statistics have been compiled from Bills A and B, as published by the Customs, and from manifests of steamships. The Prices are from the *Public Ledger* and *Liverpool Post*, and actual sales not published.

In England.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.
Prices per 112 lbs. December 31	Pile 2, 32/6	Pile 1, 48/- ,, 2, 45/- ,, 3, 38/-	Pile 1, ,, 2, 52/6 ,, 3, 51/-	Pile 1, 48/- ,, 2, 44/- ,, 3, 40/-	Pile 1, 47 - ,, 2, 42/- ,, 3, 39/-	Pile 1, 47/- ,, 2, 41/6 ,, 3, 38/-	Pile 1, 44/- ,, 2, 33/- ,, 3, 30/-	Pile 1, 51/6 ,, 2, 38/- ,, 3, 35/-	Pile 1, 63/6 ,, 2, 40/- ,, 3, 31/6	Pile 1, 60/- ,, 2, 48/- ,, 3, 42/-	Pile 1, 60/- ,, 2, 49/6 ,, 3, 38/-
Stocks in hand, Dec. 31, in Casks	7,000	None	150	2,600	700	640	855	1,100	1,800	640	520
Imported from Jan. 1 to Dec. 31.	13,374	1,189	7,552	6,440	7,943	1,855	10,245	16,611	17,440	7,520	2,120
				AMERICAN HONEY.							
Imported during...	None	None	None	None	None	None	Sections, 160,000lbs. Strained, 260,000lbs.	Sections, 200,000lbs. Strained, 340,000lbs.	Sections, 8,000 lbs. Strained, 220,000lbs.	Sections, 2,500 lbs. Strained, 85,000 lbs.	Sections, 13,800 lbs. Strained, 160,000lbs.
Prices, Dec. 31 ...	... ...	... ...	... ...	... ...	... ...	... ...	Sections, 1/- per lb. Strained, 5*d.* to 5½*d.*	Sections, 1/- per lb. Strained, 5*d.* to 5½*d.*	Sections, 1/- per lb. Strained, 5½*d.* to 6*d.*	Sections, 1/- per lb. Strained, 6*d.* to 6½*d.*	Sections, 1/- per lb. Strained, 6*d.* to 7½*d.*

It will be seen by the above that American Honey began to be imported in 1878, and that prices have been steadily maintained ever since; in fact, the strained or extracted honey has shown a regular advance from 5*d.* to 7½*d* per lb. In 1878, when white-comb honey in 2-lb. sections, such as Basswood and White Clover, was fetching 7*d.* to 8*d.* per lb. gross weight in New York, it sold in London at 1*s.* per lb. gross weight; that is to say, each crate containing 1 dozen prize sections commanded 8*s.* and more in London than in New York. It costs for freight from New York, including insurance, and terminal charges in London, a shade under 1*s.* per case; but, being very fragile, only a few merchants care to import it. The reason why the honey from Chili, Mexico, &c., runs down so low in price is on account of the quality being often very inferior. Not only is the colour dark and the flavour bad, but this honey is filled with dead bees. To brighten the colour, and remove the objectionable flavour and dead bees, is to very materially enhance its marketable value, hence a honey refinery would be a legitimate and profitable enterprise.—W. M. Hoge & Co., Dealers in Honey and Beeswax, 35 *Leconfield Road, Stoke Newington.*

SWITZERLAND.

Experiments against Foul-Brood.

In the early part of last season we paid a visit to several of the apiaries in the neighbourhood, in order to ascertain the exact condition the bees were in. The first receiving attention was one which consisted of five stocks in bar-frame hives, one of which was affected by foul brood to a very considerable extent. We waited until the weather became warmer, and then had the bees transferred into a new hive, where we had them fed up with syrup containing acid, and the colony is now healthy. We subsequently visited another apiary consisting of twenty common hives, and the fact was soon revealed that four had died early in the spring with foul-brood, and a third one, composed of about twenty-five stocks, was also found to be infected with the same disease. We advised the owner of the latter to destroy entirely four colonies, which we considered too far gone. It is well to point out that at the commencement of last year, we reconstructed, as it were, our own apiary by destroying several affected stocks and curing two others by transferring the bees into new hives and feeding them up with syrup containing the acid, so that when the autumn set in, all seemed well. When the spring came these two stocks were found to be in good condition, but the disease had unfortunately broken out in six other hives. It is most difficult to ascertain the exact date when the disease first attacks a colony, and in infected districts it is, moreover, no easy task to keep it out of any given apiary. Were we to adopt the plan of feeding our bees every early spring and late autumn with syrup and acid after foul-brood has once been eradicated, it would constitute a most dangerous practice, for, as is well known, feeding either too early or too late in the year, would to a certainty, stimulate breeding out of season, and the consequences might prove very detrimental to the welfare of the apiary. Consequently, we have set about to discover some other means by which the introduction of foul-brood might be avoided or its spreading where it might have already appeared prevented. Therefore, the problem we put to ourselves was, to find a quick and economic process by which the bees could be made to introduce the acid in small quantities into the food intended for the larvæ, and in such a way that the germs of the disease might be constantly checked without involving any disorganization into the order of things. The experiments made this year in this direction seem to us conclusive, and we have substantial hopes of a complete success in the near future. To secure this result,

we have mixed some salicylic acid with the water in the artificial fountain to which bees repaired to drink. The proportions adopted were 50 grammes (1¾ oz.) of acid for every 400 of alcohol, and for every litre (2 pints) of water we added 10 c.c. (1½ grain) of this solution. These proportions are about double what is generally recommended for syrup. The quantity of water consumed daily by the bees averaged 3 to 4 litres. At times during very severe cold weather the water presented a rather gelatinous appearance, but as the bees readily took to sucking up all the dampness in a cloth which had been dipped into the solution, we took no further notice of it. This kind of treatment lasted nearly seven weeks, but as soon as the honey glut set in, the bees no longer resorted to the fountain in large numbers until hay-making time. In the spring we had six stocks more or less infected with foul-brood, three of which we transferred and fed up as already explained, but the other three we left as they were to experiment with. In the latter the disease was rather in an advanced stage, but they contained, nevertheless, a fair number of bees. After about seven weeks of this treatment we made a most careful examination of the six stocks in question, for which purpose every comb containing brood was taken into a warm room in the same order they occupied in their respective hive. As regards the other stocks in the apiary, every individual comb was scrupulously examined, but not a sign of the disease was discovered in any of them, the infection having, in all probability, been checked everywhere from its earliest stage. In the spring the brood is always to be met with in regular patches, owing probably to the fact that a queen finds plenty of free room for laying; hence, at this time of the year the examination of a hive is an easy matter. Upon examining the brood-combs of the three colonies which had not received any particular treatment, a large quantity of rotten brood was met with in that which was the centre of the earliest brood. Those next to it, on either side, were also similarly infected, but on arriving at the fourth and fifth a better state of affairs was discovered. A good proportion of the brood in the centre combs had hatched out, but not all, many of the cells showing decided signs of disease. In the *rose* of sealed-up brood round the cells which had been hatched out, the disease was certainly less virulent; and when we arrived at the furthest comb from the original centre, not a single infected cell was to be seen. The disease, therefore, instead of increasing as it generally does, had certainly taken the opposite course. We destroyed all the combs still infected of these hives and fed with the acid syrup. The other three hives, the bees of which we had transferred, looked healthy. At the time of writing the epidemic has decreased so rapidly that we look upon our apiary as saved, and we feel more — over confident that it will be still healthier before next autumn, seeing that we purpose developing this treatment to the last as the season advances. Nor do we intend discontinuing until the last vestige of foul-brood has disappeared from our apiary.—G. De Layens. (*Translated from the Swiss 'Bulletin d'Apiculture,'* No. 6.)

The illustrated bee paper, the *Bienenzeitung*, published in Zurich, after struggling for an existence for nineteen months, has been obliged to succumb.

FRANCE.

From reports from the Prefects of the several departments to the Ministry of Agricultural and Commerce, it appears that there are at present in France 1,971,865 bee-hives in operation. In the year 1882 they produced 9,948,642 kilogrammes of honey, of the gross value of 14,945,885f., and 2,845,749 kilogrammes of wax, of the value of 8,752,290f., being a total value of 23,698,175f. for a single year's production of the French bee-hives.

Correspondence.

*** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of October 1883, amounted to 725*l.* [From a private return sent by the Principal of the Statistical Office, H.M. Customs, to E. H. Bellairs, Christchurch.]

MR. HEHNER'S LECTURE.

Mr. Hehner, in his highly interesting lecture, has stated that the nectar of flowers is practically cane-sugar. The bees convert this into honey. Now I wish to know, if we feed our bees with a solution of cane-sugar which they store, in what respect does the produce differ from honey? Being the same material, if it undergoes the same process, the result should be the same. Aroma and flavour may be wanting, but I am afraid a good chemist could easily add this either directly to the honey, or indirectly to the syrup. And this fraud, which could be rendered highly profitable, would I imagine be difficult to detect.—G. W. Speth, *Margate, Nov.* 18, 1883.

[Though honey may essentially be a compound of sugar and water, yet in the digestive process which takes place in the body of the bee, there are certain 'ferment-changes' required which convert the above constituents into honey. M. De Planta, a chemist and a bee-keeper, asserts that the saliva of the bee is a factor in this conversion. (See Zurich Exhibition, p. 267.) We believe that chemists have not up to the present time been able to supply the constituents of honey, though, possibly, they may be within a measurable distance of doing so.]

UNITING.

On the 23rd of October, I was sent to go to a farm in the neighbourhood to drive two stocks of bees, and to unite them to other two. Not having much time to spare, and having no seented syrup with me, I thought I would try a new plan that I had in my mind for some time. It was as follows:—I drove No. 1, and captured the queen, then turned up No. 2, and placed the skep containing to No. 1 bees, and drove No. 2 bees up among them; they mixed nicely. I did not see a single fight. After assuring myself of the queen of No. 2, I gave the top skep a sudden jerk, and all the bees fell down into No. 2; I set it on its stand, and everything seemed right. So I repeated the same operation with Nos. 3 and 4 with great success. I intend following this plan next year. If it can always be done with success, it will be a great saving of time and trouble.—John Thomson, 130 *Copland Street, Dalbeattie.*

TWIN HIVE.

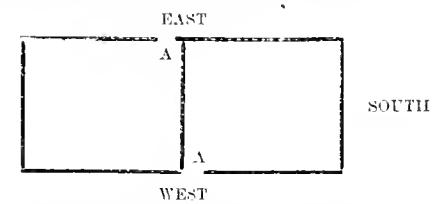
I have carefully looked over the very clear description of 'Twin Hive,' by 'Apicula,' in *B.B.J.* of 15th November, and thank him for this earnest of his desire to assist amateurs like myself in hive-making. As he kindly invites criticism, may I suggest that the dimensions given should be retained, as I fancy an addition of eight inches to the length would not only make it rather unwieldy, but also less suitable for its purpose, compactness and warmth in winter? I made during the past

season two hives (single), one with double walls at the side, the inner walls being glass in wooden frames (on which the brood-frames hung), and the outer serving as shutters similar to 'Apicula's,' behind which was inserted a pane of glass, leaving a two-inch space between it and glass frame. A passage ¾-inch deep was cut from lower bar of glass frame, and covered with queen-proof zinc to admit bees to sections placed between the panes on both sides of hive. The sections are now removed, and chaff inserted for winter. From my experience of this contrivance I should advise 'Apicula' to adopt something of the same with the back of his 'Twin Hive.' This could easily be done by allowing the two-inch space between the panes, and the one-inch between the outer pane and shutter.

It will be understood that the frames (brood) in the hive I mention go across instead of from back to front, and when both shutters are down the hive is open to inspection without disturbing the frames or irritating the bees, while the outer panes effectually prevent the escape of the bees and perform the part of dividers in getting the sections sealed perfectly flat.—DAVID HENDERSON, *Strathtay*.

TWIN-HIVES.

I notice much has been written of late in the *B. B. Journal* about the above hives. I am thinking of making a few of them to try them; but I would like to place the mouth holes at A A, as in subjoined plan, in-



stead of at the ends as most of our writers put them, seeing that bees keep their brood next the door; and their honey at the furthest end from the door, the mouth holes will be best in the centre, as that would keep the two clusters of bees together.—JOHN THOMSON, *Dalbeattie*.

SYRUP MAKING.

Mr. Saddler makes an unwarrantable assertion in your last issue to the effect that if he followed my advice, and boiled 6 lbs. of sugar in one quart of water rapidly for half an hour, he would have burnt sugar. How can he reconcile this with his recommendation in making candy to use *7 lbs.* of sugar *to one and a half pints* of water, and boil, until a little taken on a spoon and put into cold water will form a soft ball between the fingers? This will take quite half-an-hour's boiling with *more sugar* and *less water* than I recommend for syrup, and I presume he does not wish us to infer that his advertised candy is burnt sugar. I again assert that my proportions and time for boiling are correct, and that a thoroughly good syrup that will not crystallise is the result. I agree with Mr. S. that syrup ought not to be stirred after it has come to boil. I should say that I always use a copper saucepan with tinned inside facings, and I never burnt syrup or candy in it yet.—CORNUBIA.

SYRUP FEEDING.

Some surprise seems to have been caused by my statement that I use no acids in my syrup, and yet have no trouble with it crystallizing. I believe I stated that for autumn feeding I use the proportion of one pound of loaf sugar to every half-pint of water. Such is the case; but were it necessary to feed later, I should use less water, but give it to the bees in such a manner that it would all be taken down before it had time to cool; otherwise it would in this case becomed crystallized. The proportion given above is the least possible amount of water that can be used (without acids) so that the sugar may be held in a liquid state, providing it is not boiled longer than is necessary to dissolve the last lump. Should boiling be persisted in after that, of course more water is expelled, and the syrup will soon begin to crystallize. The same will happen if it is persistently stirred. I stir only *occasionally before* boiling, *never after*, and never have it burnt.

I think I have now explained in a simple manner the reasons why I have no trouble with my syrup, and am able to do without acids: it is done simply by adhering to a few plain facts. I have not found boiling to *kill* the grain; but if it does so, why do those who make that statement at the same time assert that it is absolutely necessary to use an acid of some kind? What need of the acid if *boiling* will do it?—SAMUEL SIMMINS, *Rottingdean*.

DISPOSAL OF HONEY.

Can any fellow reader of the *Journal* throw any light on my inability to dispose of a quantity of sections (as good a sample as can be got)? I have offered them to two firms that have showy advertisements in this *Journal* at 1*s.* 4*d.* per lb., they do not want them; neither will they offer a price. The experts tell you they will sell them for you; but why is it they do not? The reports from all localities state in the *Journal* that the yield has been very bad this year. A friend of mine told me the other day of a firm that was retailing sections at 2*s.* 6*d.* per lb.; it occurs to me, that there might be means devised to bring the consumers and producers into direct intercourse; which would be a great advantage to both. —J. P., *Hayward's Heath*.

STRAW DUMMIES.

I wish to thank Mr. Jonas for his letter of November 15; of course, when I come to think it over, the bees will cut the string of the dummies; but I think string the best for the tops, as they are protected by the quilt; and if sewn loose, can be doubled up as easily as a quilt, which I think is a great advantage when manipulating, in winter especially.—A. FITCH, *Cople*.

BLACKS AND LIGURIANS.

I have read with much interest the communications which have appeared from time to time in the *Bee Journal* on Blacks *v.* Ligurians; and I cannot but regret that the discussion should have ended so unsatisfactorily for the latter. The friends of the blacks have pointed out, not without force, that it is the obvious interest of bee importers and bee merchants to be advocates for the Italians: but are we to accept the conclusion to which by far the greater number of your correspondents have arrived, that the black bee from being less given to swarming is, after all, the best for amateurs who want honey, and dread swarms, and do not live amid red clover? I venture to appeal through your columns 'to those who know' to tell us what is the best opinion upon this point. Mr. Cowan in his *Guide-book* says, 'Much prejudice existed against them at first, but now their superiority over the common black bee is almost universally admitted;' but Mr. Cowan places amongst their superior qualities this very readiness and eagerness to swarm, which your correspondents regard, apparently with justice, as so serious a disqualification.—V. G., *Thames Valley*.

[The following communication, *inter alia*, gives the experience of a practised bee-keeper respecting Italian bees.]

JOTTINGS FOR THE *JOURNAL*.

I am rather amused to read the positive opinions of young bee-keepers anent feeding, milk food, candy, Italian bees, and a host of other points which in reality require years of practice and hard study to elucidate; and young bee-keepers will be astonished how little advance there has been since the time of Huber, in comparison with all the minds, all the time, and all the articles devoted to the subject. And one thing would save our Editor a great deal of trouble—viz., if young beginners would give a little more time to the careful reading of some elementary book on modern bee-culture. It would save them asking many questions: and my advice to would-be bee-keepers is that no one should commence bee-keeping unless he has some aptitude for the work he desires to undertake. With patience, practice, and perseverance, he will ultimately succeed in learning how very little we know, and how very much there is to learn, and the more intelligence he can press into his service, the more successful he will become by treasuring up his many failings. They will be valuable capital upon which to work in after years. Experience is the best teacher, although she teaches sometimes costly lessons. Send those to the *Journal* for the benefit of fellow bee-keepers.

Coming back to my 'jottings,' I find many items which will be interesting to bee-keepers; first, in regard to feeding. The wide diversity of opinion, every one recommending his own particular nostrum, renders it dangerous to contradict such weighty opinions, each one maintaining that his own particular candy or other substance is the best. We will have some one crying there is nothing like glue, some one else there is nothing like leather, for bees to live upon, while if we consult the bees themselves, they will say there is nothing like honey, and we may rest assured they are right: and in the event of a substitute being required, why the next best, some form of cane sugar made into syrup without any nostrums except wholesome water; and if you evaporate to any form of candy, the loss of bee-life consequent on their leaving the hive in search of water is the source of much loss, which by the use of syrup is greatly avoided. One point seems to be quite lost sight of by bee-keepers; that is, that all forms of cane sugar will absorb moisture, and the softer ones even completely deliquesce in a moist atmosphere. Take a fine sample of Demerara, make it into thick syrup, place it in a cold place; it will candy very much like heather honey. Now in this some one will say, add some acid, glucose, or other substance: but place this candied sugar in the temperature of a hive of bees, and it at once comes back to the original syrup, and will continue to do so as long as sufficient moisture remains. All acids vary in strength, and thus are unsuitable to use as bee foods, and they alone are the cause of more dysentery than unsealed food in the hive. The tendency of all sorts of vinegar is to ferment and sour, more especially if exposed to the air. Consequently, my advice is: use cane-sugar made into wholesome syrups. I last used glucose, which answered very well, but for some years nothing but syrup pure and simple; and when I inform you that we take every particle of honey, and winter solely on syrup, it adds additional proof of its wholesomeness.

Milk Food.—I see one old bee-keeper and one young in the pages of the *Journal* condemn this valuable food. Whilst I would not advocate every young and old bee-keeper to commence and feed with milk food, I might suggest this: try a useless lot, and if some bee-keepers had a dose or two it would prove beneficial, especially if it act the same as it does on bees. Why, they would fall to work with a will, and soon fill their hive with brood, honey, and give a good return for the outlay; and, what is more to the point, if they should store any, it would, like good ideas, keep, and be useful afterwards. Don't be afraid of milk food, young bee-keepers, try it, and if your hive is healthy it will prosper and increase at a prodigious rate, even to fill a Pettigrew barn.

Italian Bees.—Having for many years been an ardent admirer of *Apis Ligustica*, I must refer any doubting Thomas to a reprint of several letters contributed to the *Newcastle Weekly Chronicle*, and reproduced by our late editor in a back number of the *B. B. Journal* (1878, I think). Since that time I have been more than ever satisfied of their superiority, especially the first cross. Several years ago it was much easier to demonstrate this than now, for the Italian blood has been so disseminated throughout the country, that even amongst our Yorkshire wolds it crops up in thirty-second cousins when least expected. Take a single instance of it in my own apiary. This year a half-bred queen, and consequently quarter-bred bees, gave me 32 lbs. of super honey, and above 3 stone sealed comb from the body-box; whilst other sixteen black stocks under the same conditions only filled their body-boxes similar to the Italian. I may add that I once had a stock of Herzegovinian bees sent by mistake for Ligurians, which were splendid workers, but such irascible tempers that I had to dethrone the queen,—in fact, annihilate them. The beauty of Italian bees alone makes a stock or two worth keeping; and as for the argument used by a late writer in the *Journal*, that they were only good to breed from, why, it cuts the ground from under his own feet, for it is a self-evident fact that if you have abundance of worker-bees, and honey abound, they will bring it in so fast as even to fill up the brood-cells; and had I had only one year's experience with those bees, I might have come to the same conclusion as the writer; for in the year 1878 I had seven stocks of half-breeds, and they bred most profusely, and became prodigious stocks. A very large bean-field adjoining the apiary came into bloom, and they quickly filled their hives of fourteen and sixteen Standard frames from top to bottom. At that time I had no extractor, and three or four weeks after, when one arrived, a great part of the honey was uncapped and used, and sheets of brood again coming forward. Now, had I been in a heather district, those bees would have given good account of themselves. When the fault lay in the want of forage, consequently such large stocks of bees consumed a greater part of their stores. However, it gave me a practical lesson in hive-making; that was, to use a different arrangement, and since then I can take my honey off in a saleable form, and seldom use an extractor.

As my 'jottings' have become rather lengthy, I think it best to draw to a close, hoping bee-keepers will try all and hold fast to that which is good.—W. Crisp, *Great Ayton, Yorks.*

SMOKERS.

In common with many other young bee-keepers, I had at first a great deal of trouble with my smoker. I have now entirely overcome my difficulties, and can make it burn without fail for a period of from one and a half to two hours, smouldering slowly when not in use, and giving off dense volumes of smoke whenever required. I once kept it alight four hours and a half continuously, during which time it was used some fifteen or twenty times at intervals, varying from five minutes to half-an-hour without reloading or receiving any attention. Recent correspondence in the *B. B. Journal* makes me think that a description of the way in which this can be done, will be acceptable to some of its readers.

My smoker is a 3*s.* 6*d.* Neighbour's, with a barrel 1⅝ inches in diameter. This is the cheapest form which Mr. Neighbour sends out, and I believe it would be true economy to give a little more for a better article. But even a cheap instrument such as this will work well if it be kept clean. This is of the first importance. A smoker, like every other chimney, needs to be swept.

The perforated spark-guard in the nozzle should be looked to occasionally; and if at all clogged, it should be taken out and held in the fire for a minute or so, until it is red-hot, and when cool, scraped with a knife before being replaced. The inside of the barrel and nozzle should also be scraped when there is any accumulation upon them.

So much for the smoker; now as to the fuel. I use brown paper, and find thick paper best, the thicker and coarser the better; but almost anything will do, from stout millboard down to thin parcel paper, if it is properly managed. The great thing is to cut the paper to the exact size required, and roll or fold it neatly and evenly so as just to fit the smoker. More or less paper will be needed according to its stoutness, and the length of time it is desired to burn. It burns longer when rolled than when folded, and is less trouble to prepare. I cut strips of suitable length, roll them evenly round a lead-pencil, so as to give each roll a diameter of about an inch, tie round them a piece of thread, which is easily broken by the finger when wanted, and put them by for use.

As facts are more satisfactory than general statements, I have made a series of six experiments during the last day or two. The smoker in these trials was not actually used upon bees, but was subjected nevertheless to exactly the same conditions as if it had been. The fuel was a large sheet of common brown paper in which a parcel had been received. Six strips were cut, each 44 inches by 4½. Four of these strips were rolled round a pencil as described above; the remaining two were folded zigzag fashion in inch plies. I should have preferred the paper much stouter, in which case a less length would have been required, but had none at hand. Taking first the four rolls; Nos. 1 and 2 were lighted at the end furthest from the nozzle, and burnt 1 hour 30 mins., and 1 hour 55 mins. respectively, giving a mean duration of 1 hour 42 mins. Each was blown once, as if in actual use, an hour after being lighted. Obviously the less oftener a smoker is used the more likely it is to go out, so that this was a severe test.

Nos. 3 and 4 were lighted at the end nearest the nozzle, and burnt 1 hour 45 mins., and 1 hour 40 mins. being blown three times and twice respectively; mean duration exactly the same as the previous two. These all gave off very little smoke except when in use, when they smoked freely. Nos. 5 and 6 were folded in zig-zags. No. 5 was lighted at outer end, and burnt 1 hour. No. 6 lighted at inner end, burnt 45 mins. Mean duration 52 mins. Both smoked like a furnace the whole time.

On the occasion mentioned above, when the smoker kept alight 4½ hours, about twice this quantity of paper was used in a compact roll which completely filled the barrel.

To sum up; the essentials of success are, first, to keep the smoker clean; second, to cut and roll the paper evenly and of the proper size to fit the smoker; and I may add as a third, to see that the hole by which air enters is not blocked by the paper. I intend during the winter to experiment upon fustian, and also upon peat, of which I have great expectations; and will communicate the results if I find them preferable in any respect to those obtained from paper.—T. L. W.

BLIGH COMPETITION.

I have been much delighted with the reports of the above competition; but I regret that so many dropped out before the end. I will be glad to see it get another trial, as I think the poorer class of cottagers did not understand the rules. I hope that Mr. Bligh will be gratified by seeing another trial of his well-laid scheme, and that it be extended to Ireland and Scotland, in order that we may see how the different nations stand in regard to economical management in different seasons and in different countries.—JOHN THOMSON, *Dalbeattie.*

'SCIENTIFIC.'

I send you the accompanying extract from the last edition of Professor Cook's *Manual.* Perhaps some of your readers will explain the use of the word 'scientific,' as relating to the practice mentioned, and also if some of your correspondents would say as to their practice in the matter of covering sections.—JOHN MARTEN, *Dunkirk, Faversham, Nov. 27.*

Cook, *The Bee-keeper's Guide,* 9th edition, page 150:—'Mr. Adam Grimm once wrote that boxes above the hive should not be closely covered. As already stated, Mr. Heddon puts no cover over his sections. Mr. Hasty is pleased with simply a cloth and cheap muslin about his sections, and a board cover to protect from rains. Such ventilation of the sections is "scientific" as well as practical.'

FEEDING COTTAGERS' SKEPS.

A good receipt, instructing cottagers how to make candy efficiently and economically with the utensils they usually have, and the best way of feeding stocks in skeps that are short of food, will be of great value to cottagers, the majority of whom put off feeding until winter.

I bought a few skeps of starving bees to try and save their lives. Desiring to make an experiment I sent to a well-known maker for about a stone of candy, for a sample. I found it to be good, but, being sent by passenger-train, the carriage alone cost three shillings, which caused it to be very expensive.—R. THORPE, *Evedon.*

HOW I TOOK (?) THE BEES FROM THE WALL OF A COTTAGE.

Having found a nest of bees in the space between the outer and inner walls of a lath-and-plaster cottage, I, in a moment of temporary insanity, undertook to remove them, the cottager to have the honey, and I the remainder of the spoil for my trouble. I was not to interfere with the outer wall, but conduct all my operations from the inside.

On arriving with my tools and my box, with two or three frames in which to tie the brood, I was shown the room from which the bees were to be attacked. This was the bedroom, comprising far more bed than room. The bees were in the wall in the corner, on the same side as the window, so that as I worked my body obscured what little light there might have been. As there was only about eighteen inches between the wall and the bed, I requested that the latter might be moved, but was told that the four legs stood upon four carefully selected sound spots on the floor, and if moved off them it might be found in the living-room beneath without being carried down. Of course I could say no more, and so down I went on my knees in my corner, and proceeded to break away the lath and plaster. I found there was only a space between the walls of four inches, and there were two combs built, each attached to one wall. As I removed the laths it was only by feel that I could distinguish the combs from them, the corner being so dark. However, I got out about 30 lbs. of honey-comb, which I put in a pan on the bed; about a foot square of brood, which I tied into a frame; and the bees, which were 'all over the shop!' I gave those in the hole a puff of smoke, and left them to cluster while I went and drove nine stocks in the neighbourhood. On my return I found a fair-sized cluster, but in such an awkward position that I could not brush them into my box: I scooped as many as I could in and shut them in while I tried to get the remainder. Of course, if I could have found the queen and caged her on the brood my task would have been easy, but it was too dark to attempt to find her. I tried to puff-ball them, but only succeeded in making a horrible smell of burning fungus in the bedroom. Eventually I had to be content with what I had got.

A good many bees had clustered in the windows, only half of which would open; these I got out as well as I could, and then called up the occupier of the mansion and delivered to him his honey. With this he was pleased, but not so well with the room. By this time the bees, which had got smeared with honey from the broken combs and fallen into the dust, were crawling over the floor trying to clean their wings, while those which had got into the pan along with the combs had crawled up the sides and tumbled on to the bed. He said 'his missus were mortal afeared of bees,' and they had to sleep in that room, what should be do? I told him to sweep up bees and rubbish together and bury the lot. He certainly got the best of the bargain, 30 lbs. of honey for little trouble; while I got four hours' work, the appearance of a plasterer's labourer for the whole day, about a quart of bees, and some brood, which was dead when I got it home. I hope none of the bees got *in* the bed, or that cottage would be a lively one that night. ('The missus' was decidedly master.)

Moral: Look well before you leap at the task of removing bees from a tumble-down cottage where you must not disturb the outer wall.—F. L.

THE MOUTH OF THE STOMACH IN THE BEE.

BY PASTOR SCHÖNFELD.

(*Concluded from page* 217.)

But now if a bee wants to eject brood-food she will of course not do away with the inversion in this way. Neither the tracheæ nor yet the long muscles combining honey-stomach and chyle-stomach together permit a stretching of the neck 2 millimeters without tearing, although they are capable of a certain amount of stretching, because they form a curve in the normal position of the intestinal region. There are, however, two other methods open to the bee. Either she bends the prolongation through the neck into the wide cavity of the stomach-mouth, or she bends it outwards through the ring-shaped opening between neck and chyle-intestine, so that it lies on the outer end of the chyle-intestine in the shape of a much-compressed Roman S. Neither method presents any difficulty from the anatomical structure of the organ, indeed it points us to one or the other method of eversion. If we investigate the entire neck more accurately by making sections, we find that the intima shortly before it leaves the honey-stomach, parts and separates from the cellular layer and propria, so that it floats free in the cavity of the neck and prolongation as far as the lower end of the prolongation and of the bend upwards, and that it alone forms the last third of the prolongation, since propria and cellular layer only project about $\frac{1}{10}$ of a millimeter into the chyle-intestine, and then turn back upwards. There certainly must be some end to be gained by this arrangement. For if the bee contracts the annular muscles of her neck while she at the same time raises her stomach-mouth a little, the intima, and with it the whole inversion, must necessarily, and with ease, be drawn and wound upwards, especially since the intima alone forms the last third of the inversion, and therefore can follow the slightest contraction. If now, in order to eject the contents of the stomach, the chyle-intestine is contracted by the bee at the same time and starting from the pylorus by whose contractions every ejection is introduced, as a consequence the contents of the stomach shoot forwards, meet the prolongation rolling itself up, follow after it for a moment, and bend it at last by their pushing pressure through the neck into the cavity of the stomach-mouth, so that now the duplicature is lying here as it does in a normal condition in the chyle-stomach. It is quite conceivable that the re-inversion into the chyle-stomach is managed very easily if after ejection the last annular muscles of the chyle-intestine are contracted backwards, and the bee makes some peristaltic movements. The only difficulty of which one might think in this method of eversion, viz. the narrowness of the gullet, need have no existence, as I have already mentioned that the membranes of the neck are capable of a quite incredible extension.

It is not possible by experiment to put to the test or demonstrate whether the bee accomplishes the eversion in this way, since it is impossible to imitate and replace the action and effect of the annular muscles. I do not, therefore, maintain that eversion is really and actually performed in this way, but only establish its possibility.

The second method of eversion that I mentioned above may be very well demonstrated as practicable by experiment. If we attempt to push the contents of the stomach forward by a gentle pulling at the honey-stomach, and at the same time time pressing on the chyle-intestine, we succeed in shortening the prolongation without injuring the most delicate trachea and in pushing it to the end of the stomach, so that it folds itself together here in the form of a wreath, like the folds of a bellows, and with renewed push of the contents of the stomach is everted into the ring-shaped opening between neck and chyle-intestine. The eversion ensues every time with extreme rapidity. In doing this the prolongation lays itself always necessarily in the form of a much-compressed S on the extreme end of the stomach, so that the lower end of the letter S forms and represents the opening of the stomach, and the upper end the entrance into the stomach-mouth. This eversion ensues so regularly that I engage to press in this way with any bee the contents of the stomach into the honey-bag. Of course a bee with her natural expedients will be able to accomplish this much easier and better than I can; she only needs to draw up the prolongation by means of the intima so far that it lies at the top at the extremity of the stomach: the pushing pressure of the contents of the stomach must then undeniably evert it into the ring-shaped opening. No one who knows the extraordinarily strong muscles of the chyle-intestine, whose effects are so powerful that they may be seen with the naked eye, will doubt that they are quite capable of exercising such pressure, at the same time their pushing pressure must be materially strengthened by the annular structure of the wall of the stomach.

Possibly there is also another method of eversion which is not to be deduced from the anatomical structure. There can be no doubt that the bee must have given to her the capability and possibility of being able to evert again her inverted prolongation of neck. But if no influence on the prolongation stood at the command of the bee how would she then be in a position to force the pollen-grains that had been eaten into the stomach? Would not the last bits, at least, remain sticking in the prolongation, just as certainly as we ourselves should have no power to force food into our stomach, if after the food had been pushed down over the root of the tongue and over the larynx, there was not a powerful wave of contraction starting in our gullet and driving down the food into the stomach? But since in the bee there are demonstrably no muscles at all present in the prolongation of her neck there could not be more than the first morsels forced into the stomach by the pressure of the succeeding ones, but the last would infallibly stick every time if the bee had no power to draw up the intima of the prolongation by the muscles of the stomach-mouth and so to clear off the pollen-grains remaining in the prolongation. I am certain that the wisdom that arranges everything and considers everything would have put no inversion in the bee's stomach as valve if it were not to be and could not be everted again in the cases given.

There does not, therefore, exist here anything to hinder the supply of brood-food out of the chyle stomach.

ON THE TESTING OF HONEY AND OF WAX.

By Otto Hehner, *Hon. Secretary to the Society of Public Analysts.*

I.—*Honey.*

1. Make a solution of the honey to be tested, one part in nine parts of distilled water. Filter the solution through filter-paper of close texture, repeatedly if necessary, until a perfectly clear solution is obtained. Place some of the clear solution into a polariscope, and observe whether the ray of polarised light is turned towards the right or the left. *Genuine* honey either does not exert any polarising action at all, or turns exceedingly slightly towards the left. If the solution turns notably towards the right, the honey is almost certainly *adulterated* with corn or starch syrup, or cane-sugar; not necessarily so, because honey in which crystalline sugar (dextrose) predominates, *may* turn towards the right. Inactivity towards polarised light is compatible with adulteration with cane-sugar treated with acid.

2. To some of the clear 10 per cent solution add a small pinch of yeast, and keep the solution at about blood-heat, until all fermentation has ceased, that is to say, until bubbles of gas no longer escape. Filter and polarise. *Genuine* honey after fermentation shows no polarisation whatever, nor does imitation honey made from cane-sugar syrup. Polarisation towards the right is conclusive proof of the presence of corn-syrup.

3. Evaporate some of the fermented solution and weigh the dry residue obtained. In pure honey, or such from cane-sugar, the amount of residue is about 5 per cent, or somewhat less, of the total proportion of honey originally taken. In corn syrups it amounts to more, up to 25 to 30 per cent.

4. Add to some of the clear original solution its double bulk of methylated spirit. Pure honey solution becomes but slightly turbid, corn-syrup *often*, but *not always*, furnishes a heavy white precipitate of dextrine.

5. Add to the clear solution a few drops of barium chloride solution. Pure honey solution always remains practically clear; honey made from starch or from cane-sugar almost invariably turns turbid and deposits after a little while a heavy white precipitate.

6. Make a solution of the honey to be tested, one part in 500 parts of water. Add the solution drop by drop to an accurately measured quantity of boiling 'Fehling solution,' which consists of copper sulphate, potassium tartrate, and caustic potash. Add the honey solution until the blue colour of the Fehling solution is entirely discharged, and then note how much of the saccharine fluid has been used up.

Then boil some of the honey solution (1 in 500) with a few drops of strong hydrochloric acid, allow it to cool, and, with the fluid thus heated, repeat the test upon Fehling's solution, and note the amount consumed.

In the case of genuine honey, equal amounts of honey solution will be required both before and after the acid treatment. In the case of honey sophisticated with cane-sugar *less* honey solution will be consumed after than before boiling with acid.

Genuine honey solution does not perceptibly act upon polarised light, be it tested before or after fermentation; it does not leave more than five per cent of unfermentable matter; it does not give more than a very slight precipitate with spirit; it does not become turbid with barium chloride, and acts upon Fehling solution with equal intensity both before and after boiling with acid.

Corn syrup, or honey containing it, always polarises towards the right, both before and after fermentation; contains more than five per cent of unfermentable matter, almost invariably gives precipitate with both spirit and barium chloride, but acts upon Fehling solution like genuine honey.

Honey containing *cane* sugar polarises towards the right before, but not at all after fermentation. Before treatment with acid a larger quantity of its solution is required to discharge the colour of a given quantity of Fehling solution than after being boiled with acid. In other respects it behaves like the genuine article.

Honey containing the product of the action of acid upon cane sugar in every way deports itself like genuine honey, but, in all cases which have come under my notice, gives a strong white precipitate with barium chloride. (*To be continued.*)

STINGS.

By Professor A. Vogel.

In the sting of the bee, wasp, hornet, &c., a minute drop of a transparent liquid may be observed on the sting, and is called 'bee-poison' (formic acid). It penetrates into the wound produced by the sting, and causes the well-known effects. It would, however, be a great mistake to assume that the only object of this is to increase the effect of the sting, that is, that it serves only to injure. It has a far more important purpose, namely, to prevent fermentation and decay. The celebrated bee cultivator, Holz, reports that in his long experience with honey that which came from what are called 'rancorous swarms' (*boshaft*) had peculiar properties. It always had a bitter, harsh taste, and its smell was sharp too. How can the character of the swarm affect the smell and taste of the honey they gather? We know that bees, when they are disturbed, run out their stings, on the end of which may be seen a tiny drop. This little drop, as we have already said, is bee-poison, or formic acid. When the disturbance is at an end they draw in their stings again, but the little drop of liquid does not go back with it, being wiped off on the comb, and sooner or later getting mixed up with the honey. This explains how honey from such excited bees must taste and smell sharper than from peaceable bees. Excitable bees will rub off this little drop of formic acid more frequently than other bees; perhaps a larger drop is formed by nervous bees than by those that are not nervous, and hence the honey is richer in formic acid. This acid is never absent from genuine honey, but the amount differs. This contamination is not only uninjurious but very useful, in fact, necessary, for it keeps the honey from spoiling; we know, indeed, that purified honey, from which the formic acid has been removed, very soon ferments, while unpurified honey will keep unchanged for years. Nature furnishes the bees with this knowledge instinctively, and therefore they do not carry this drop of formic acid away out of the hive. Bee connoisseurs assure me that the bees add it to the nectar which they collect that is free from it so as to make it keep, and they do this in places where they are not disturbed too.

Bee-stings are often spoken of in agricultural and popular papers as a remedy for rheumatic affections, and numerous cures are adduced to prove it. If the formic acid that accompanies the sting can be looked upon as the principal agent in the cure, it would be worth while to try the experiment of rubbing the spot with this acid, or injecting it under the skin, so as to avoid the somewhat inconvenient method of applying live bees.

Two hundred years ago formic acid was made from the brown wood ants, by triturating them with water and distilling it. The acid liquid was used to irritate the skin. The reddening of the skin, by using baths of pine-leaves, is also due to the action of the formic acid. The anti-fermentative action of formic acid has also long been recognised.

As regards the irritative action of stinging nettles and other similar vegetables, it depends, as already stated, on formic acid. The point of the nettles is brittle as glass, and by the slightest touch penetrates the skin and breaks off, pouring out its acid, and causing the burning sensation.

LECTURE ON BEES AND BEE-KEEPING AT LARTINGTON.

Mr. W. Crisp, F.S.Sc., delivered a lecture in the School-room on the above subject. There was a large attendance of the Lartington tenantry and inhabitants. Mr. Crisp, at the commencement, said,—Knowing the circumstances under which bee-keeping has declined in the locality, viz., the death of some hundreds of hives, and only two or three surviving these last three or four severe winters, I have not come amongst you to condemn but to instruct you how you may not only save your bees, but reap a better honey-harvest than by the method you have been in the habit of pursuing—that of keeping your bees in straw skeps. For my own part I like straw skeps; they look picturesque and are warm and comfortable for their inmates; but when I have said this of them, it is about all I can say in their favour; and you, from being old bee-keepers, doubtless know as well as I do, how much information you can have of your bees when the hive you use precludes all practical observation. Now we are in the habit of using various other kinds of hives, viz., boxes into which frames of this description are made to slide; thus, at any favourable time, we can examine our bees and find out their habits, supply their wants, and save the colonies from disaster. Now let us apply this rule to your bees. These last three or four winters have nearly decimated the occupants of the straw skeps in the whole country side, and I find in various places I have visited it is the same story; one or two hives kept where there used to be many; in some cases up to hundreds. I have been told that this estate alone had upwards of two hundred stocks, and that you ascribed their deaths to the place being overstocked. This, I may say, was an error, for it is an extremely fine honey district, and being on the verge of miles of heather, you could not be in a better place. Now let us consider what was the probable cause of your bees dying. There are three causes of bees dying—first, old queens; second, queenlessness; and third, the most likely cause, not sufficient winter food. The first cause, viz., old queens, is the exception more than the rule, for the bees finding their old queen to be useless, dethrone her, and raise a successor. It is only when no larvæ exist, and the hive has become very low from the enfeebled queen not depositing sufficient eggs, that is, goes into winter-quarters deficient of bees, and dies by not being able to keep up the animal heat of the hive. Never keep through winter a feeble stock, rather add them to another weak one. The second cause, queenlessness, is, unfortunately, too common, and with the hives you use you have no certain means of finding out when this is the case. Now we, with our moveable combs in frames, can soon discover whether the hive has a queen or not. From certain indications at the entrance, bees moving sluggishly about, we suspect some cause has made the colony queenless. One of the most likely is that the queen has been snapped up by some bird when out on her matrimonial trip. Suspecting this we open up our hive, which gives us such facilities for observation, and examine for the queen, which may be readily recognised by her lengthy body and slow, stately movements. If no young larvæ exist, no queen to be seen, and, above all, if the bees have begun to construct long cells like this, you may be sure it is queenless. Now you will ask, What is the best thing to do in this case? Advanced bee-keepers, if they have many hives, find it to their advantage to have on hand a few queens. (A voice, 'Where do they get them?') Well, I will tell you. In the month of May, or when the stock is strong enough (and mind bee-keepers sometimes make a mistake here), we open up a hive, remove the comb and brood, on which we find her majesty, place it in an empty box-hive, fill up with empty frames fitted with comb-foundation (like this), and remove the old hive from which the queen has been taken to a new stand some distance away. Most of the old bees will join the queen in the empty hive placed on the site of the old hive, and form a new, strong first swarm. In a few days open the hive from which the queen was taken, and you will find that the young bees, discovering themselves to be queenless, after the first excitement has has cooled down, have started some queen-cells, long oval protuberances (like this on the diagram). Now we take as many of those queen-cells as we wish to utilise, and cut out a piece of comb and place it in a small frame-hive, and a few bees sufficient to hatch out the young queen, which will take place in a few days, according to the age of the larvæ selected. By thus raising queens you save much valuable time at this most important season. In fact, the time saved is equal to a swarm, for about three weeks elapse between the laying of the egg and its full development into a fertile queen; and as a good queen, in a strong stock, with honey and pollen in abundance, will lay from 2000 to 3000 eggs per day, it can easily be computed that twenty-one days, at this rate, are equal to about 40,000 bees, the average strength of a good colony. Now, if you have no queens on hand, and it is too late in the season to raise any, it will be self-evident to you that the drones, being the male bees, it will be useless raising young princesses after the drones are all dead, for, in that case, the young queen not having mated with a drone, becomes a drone-breeder. In such a case as this there is still a remedy,—purchase one from some dealer, for you are aware that bee-culture has developed into a business, and there are many honest dealers who would supply you with a fertile queen; and even if it was too late in the season to obtain one, you have still the alternative of adding the bees to another weak stock, and the advantage would be great over losing them altogether. You will have seen some of your hives die even when they are well stocked with honey. Now, this is strong presumptive evidence that the stock had become queenless, and thus gradually died out. We now come to the third and most frequent cause of bees dying, viz., want of food. Now, from the facility with which we can examine our hives, we soon see what food they contain, and what they are likely to require. I, as a rule, make it a practice to extract all honey and supply them with sugar syrup (4 lbs. to the quart of water), and preparing it by the stone at this rate, add a few pounds of glucose to prevent the sugar crystallising, which some samples are very apt to do. You cannot judge any hive by its weight alone, without you are able to investigate its interior, for a hive may contain a quantity of brood, and this will make it very heavy; or it may contain a quantity of pollen, or bee-bread, and this is very heavy; or the combs themselves may be old and thickened by the accumulation of skins left from the various hatchings, and this will make hives very heavy; so that you see, from various causes, the frame-hive is the only one that allows us to become acquainted with the wants and nature of the interior. One word of caution in regard to feeding. You must feed up in September, before the cold weather sets in, or you will be likely to have so much damp in your hives as to be detrimental to the health of the hive; or you may put it so far into the cold weather, that the bees will not take the syrup unless warmed, and then unlimited feeding becomes dangerous. It is far better to guard against a season like this last one, to set early in the season, or, when the others are sent to the moors, keep one at home and feed it as fast as ever it will take, and seal up the syrup, taking out the combs as soon as completed, and storing them away to give to the other hives when they are brought from the moors. By these means, and ordinary judgment, you will have little cause to complain of the loss of your hives. (A voice: 'What is the best size for wooden boxes?') The frame I have shown you, fitted with Abbott's flat-bottomed comb foundation, is for a hive 15 inches square by 11 inches

deep, and there is a growing opinion that about 2000 cubic inches of space is the best size. I have worked larger hives, but they are not so successful as the one known as the Woodbury size, which is likely to become a standard one, patronised by the British Bee-keepers' Association; and now, in mentioning this Association, I think something might be done to get up a branch of the British Bee Association for the district of Barnard Castle. Several persons have approved of the idea, and it might be carried out. Allow me to call your attention to the shape of this frame. At the present time the size and shape of the frames are taking the attention of bee-keepers. A year or two ago I was in favour of close-ended frames, 1⅛ inch wide; a season's experience has shown me the trouble of manipulating close-ended frames, so that, to overcome the difficulty, I just planed a little off the lower ends, making them wedge-shaped, 1⅛ inch at top, and 1 inch at bottom; otherwise bees do best in close-ended frames, but to get them out and into the hives, with very strong stocks, is troublesome work, for bees get between the ends, and you cannot get them into their places. Another advantage we have in the frame-hive over the skeps, is in being able to take out those frames when full of honey, and placing them in an extractor made for the purpose, empty them, and send them back to be filled again. By this means the bees, having no combs to make, gather and store a prodigious amount of honey: for it is admitted on all sides that it takes a large amount of honey to make one ounce of wax, so that you see the utility of comb-foundation in saving to the bees. I need not boast of what I have done in harvesting honey, nor need I quote strangers from the pages of the *British Bee Journal*, but will just take an old friend, Mr. Baker, of Darlington, who from a swarm took, with the aid of comb-foundation, 46 lbs. of super honey. You will observe on this diagram a bee marked with copper-coloured bands. This is an Italian bee, and enthusiastic bee-keepers have imported them in great quantities, and their superiority over our black bee is indisputable; but best of all is a cross between the two kinds, after the manner of cross-bred fowls, which you all know are best for laying purposes. So the cross-bred bees are larger, more fertile, and better workers than any other kind. I have heard their only fault is, they are quick-tempered. In drawing my remarks to a close, allow me to present you with a few copies of the *B. B. Journal*. You will find valuable information in its pages. I have no interest in praising it except gleaning many a lesson of knowledge from its pages, and I consider it well worth taking. There your will obtain much more information than I have given you. I hope you will in future adopt the best system of bee-keeping, to forward which I will at any time show you my bee appliances.—The proceedings were brought to a close by the thanks of the meeting being given to Mr. Crisp, one and all expressing their intention to try the new method of bee-culture.—*Teesdale Mercury.*

TO A BEE.

Thou wert out betimes, thou busy, busy bee!
As abroad I took my early way
Before the cow from her resting-place
Had risen up, and left her trace
On the meadow with dew so grey,
I saw thee, thou busy, busy bee.

Thou wert alive, thou busy, busy bee!
When the crowd in their sleep were dead,
Thou wert abroad in the freshest hour
When the sweetest odours come from the flower,
Man will not learn to have his lifeless bed,
And be wise and copy thee, thou busy, busy bee.

Thou wert working late, thou busy, busy bee!
After the fall of the cistus flower,
I heard thee last as I saw thee first,
When the primrose-tree blossom was ready to burst
In the coolness of the evening hour,
I heard thee, thou busy, busy bee.

Thou art a miser, thou busy, busy bee!
Late and early at employ,
Still on thy golden stores intent.
Thy youth is heaping and hoarding is spent
What thy age will never enjoy.
I will not copy thee, thou miserly bee.

Thou art a fool, thou busy, busy bee!
Thus for another to toil;
Thy master waits till thy work is done,
Till the latest flowers of the ivy are gone,
And then he will seize the spoil,
He will murder thee, thou poor little bee.

(From the *Annual Anthology*, 1800.)

Review.

MR. GRAVENHORST'S NEW BEE BOOK.

Der praktische Imker: Lehrbuch der rationellen Bienenzucht auf beweglichen Waben mit Berücksichtigung des alten Betriebes, von C. J. H. Gravenhorst, mit 52 Original-Abbildungen und einem Titelbilde. Dritte Auflage. Braunschweig, 1883; C. A. Schwetschke und Sohn.

We have received from our esteemed correspondent in Brunswick a copy of the third edition of his *Practical Bee-keeper*. Perhaps we cannot do better than allow the author's preface to furnish our readers with a general idea of its contents:

'The *Practical Bee-keeper* is, in its present third edition, in more than one respect enlarged and improved. Some sections have been omitted, others have been thoroughly revised, and others again have found admission as fresh matter in accordance with the progress of the period.

'The chapter which treats of beehives has been made more complete, inasmuch as not only has the Bogenstülper been described, but also other good hives now in use, as Dzierzon's Twin-stock, the Dathe hive, the Berlepsch hive, as well as the Langstroth hive, which is so extensively used in America.

'Among the sections that are fresh, or that have been partly revised, are those on the preparation of plaster moulds for making foundation, the method of making foundation; on the honey-slinger; how to brush bees off their combs; bee pasture; a fresh remedy for foul-brood as well as Mr. Hilbert's remedy; Weygandt's method of feeding with meal in the hive; a description of the organs of the queen-bee as shown by a longitudinal section of the abdomen; the sexual organs of the drone and the tongue; pollen-basket and sting of the worker, &c.

'The sections on increasing stocks have had special attention in the revision, as for example, that on making artificial swarms (Ableger-Feglinge). This is the best kind of artificial swarm, and may be made extremely easily and rapidly. A further section treats of the formation of doubled stocks that will yield profit every year.

'Some may think the author in the present edition has too fully considered the treatment of bees in the old Lüneburg skeps, but his object has been to show how what is best and most approved in the old skeppist school may be most successfully combined with the incomparably better methods of the new Dzierzon-school. He wishes to show how, notwithstanding the recognised skill of the heath bee-keepers who harvest their honey not by pots full, but by barrels full, their hands are tied in many respects by their sticking to the old skeps, and that the future must belong to the Dzierzon hives alone.

'A glance at the fifty-two original woodcuts, and at the

frontispiece, must show every one that the publishers have made praiseworthy efforts to furnish illustrations perfectly fulfilling their purpose. The kind assistance of an eminent naturalist has been obtained for the drawings of the bees, and their separate parts, so that these figures, so admirably done, will be able to hold their own against any scientific criticism; others, as for example the hives, have been cut in wood from photographs made specially for us and so ensuring their absolute fidelity to nature. I think I ought here to express my acknowledgments to the celebrated xylographic establishment of Mr. A. Probst, for the successful execution of the wood-cuts. May the *Practical Bee-keeper* in its new edition again find a friendly reception and contribute in a still wider measure to the extension of national bee-keeping.'

We can assure our German-reading friends, that in *Der praktische Imker* they will find a manual that will well repay perusal, for it is the work of a man who stands in the highest rank in Germany as a bee-keeper of original mind, who is not content simply to follow in the tracks that others have marked out, but has for himself thought out and experimented with methods whose success a large number of adherents bear witness to.

Pat and the Bees.—In Charles Lever's *O'Donoghue* there occurs a remarkably rich passage illustrating the relations subsisting between an improving landlord and an untutored tenant. The agent presents the tenants to the worthy innovator, who inquires into the condition of the grumbling and dissatisfied recipients of his favours. At length, on a tenant presenting himself whom the agent fails to recognise, the baronet turns to the figure before him, which with face and head swollen out of all proportions, awaits his address in sullen silence. 'Who are you, my good man? What has happened to you?' 'Faix, and it's well you may ask! My own mother wouldn't know me this blessed mornin'. 'Tis all your own doin' intoirely.' 'My doing?' replied the astonished baronet. 'What can I have to do with the state you are in, my good man?' 'Yes, it is your doin',' answered the proprietor of the swollen head. 'Tis all your doin', and may ye well be proud of it. 'Twas them blessed bees you gev me. We brought the divils into the house last night, and where did we put them but in the pig's corner? Well, after Katty an' the childer an' myself was a while in bid, the pig goes rootin' about the house, an' he wasn't aisy till he hooked his nose in the hive and spilt the bees out about the flure; and then, when I got out of bid to let out the pig that was a-roarin' through the house, the bees sittled down on me, an' began stingin' me, an' I jumped into bid again wid the whole of them afther me, to Katty an' the childer; an' thin, what wid the bees a-buzzin' an' a-stingin' us under the clothes, out we all jumped agin, and the divil such a night was ever spint in Ireland as we spint last night. What wid Katty an' the childer! an' the childer a-roarin' an' a-ballin', and the pig tarin' up an' down like mad, an' Katty wid the besom, an' myself with the fryin'-pan flattenin' the bees again the wall till mornin', an' thin the sight we wor in the mornin'—begor, it's ashamed of yourself ye ought to be.'

Echoes from the Hives.

Sussex, Rottingdean.—The weather still remains very mild, and many sunny days during the past month have helped to make the forepart of winter less dreary. I find good samples of English comb-honey have become scarce, and almost any price could now be obtained. This shows the folly of those who in their exultation over the first glut of honey, considered that an extraordinary season was at hand, and sold their sections at a very low price, soon to find that, had they been cautious, and not in such a hurry to realise, nearly fifty per cent more would have been obtained before the year was out. Dealers make the most of a little fine weather; but every bee-keeper should use his own judgment, and not dispose of his honey at the first price offered, but wait and see what the season really is and act accordingly.—S. Simmins.

Sussex.—(*Extract of a letter written to Mr. A. Rusbridge, Sidlesham, Chichester.*)—'I have had a tolerably good summer with my bees. I had several 50 lb. and 60 lb. supers. My largest quantity from one hive (one of your Sussex Bar-frame Hives) was 124 lbs. of splendid honeycomb gathered in forty-eight days. This is a good yield, and as a Sussex bee-keeper, one can feel proud of it.'

Sussex, Jevington, Polegate.—My receipts for 1883 are very fair. I have had no bar-frame hives, mine being all skeps. Some have yielded none, others have done very fairly; the greatest amount of super honey taken from one skep on the non-swarming system was 30½ lbs. This hive was all profit for 1883, as it was a swarm saved in May of 1882, which was my first year in bee-keeping. I have driven several lots for my older neighbours, and have put two and three lots together in some old boxes, which I have made for the purpose myself this autumn; and if I succeed in keeping them through the winter, I shall super with top boxes. Being a young beginner, any information will greatly oblige. Skeps in this part of Sussex have yielded about 10 lbs. each of run honey.—F. Rapley.

Huntingdon, the Mill Apiary.—The past honey season, which appears to have been a very poor one in many districts, has been a fairly good one in this immediate neighbourhood,—in fact, the most encouraging one we have had for several years. A very *small* lot of driven bees, a third swarm, which were put into a skep of empty combs last autumn, and fed up with syrup, gave a swarm on June the 14th, weighing nearly 4 lbs., filled several 1 lb. sections, and went into winter quarter strong with bees, and plenty of natural stores, proving that a even a small lot, with care and proper treatment, can be made to pay. Another lot of driven bees from *one skep* were put into a bar-frame hive furnished with two combs and two frames of foundation; syrup was given liberally until the foundation was built out, and each comb filled with sealed stores about three quarters of the way down. From this hive I had the satisfaction of taking about fifty 1-lb. sections beautifully filled and sealed over. I regret to say that during early spring my bees were inevitably neglected, causing a severe check which the best attention later on could only partially retrieve. But in spite of all that, I have no hesitation in saying that several of my stocks would have yielded at least 100 lbs. of honey each had it not been for the unpropitious weather during the time the limes, which were one mass of blossom, were in full flower. This is very encouraging, and enables one to forget past difficulties and disheartenments. I have driven several lots of bees this autumn belonging to bee-keepers in the neighbourhood, which I have utilised for strengthening my weak stocks and establishing new colonies. I go into winter quarters with nearly thirty of the finest stocks I ever had, strong with bees, plenty of food, and comfortably packed in substantial and newly-painted hives.—A. Sharp.

Uffington, Nov. 25th.—Day rather stormy, thermometer, 54°, warm intervals of sunshine, bees on wing a good deal, those in very shaded positions abroad most. Little to be said in favour of tunnelled entrances, &c. Thousands alighting on the wet foliage, not able to rise again. Never witnessed such destruction in one day, not even when they have been out with snow on the ground and a bright sun. Should this mild weather continue another month the outlook will be serious for the spring.—T. Sells.

Weston, Leamington, Nov. 21st.—While sitting at tea, one Sunday a few weeks ago, I cast my eyes up the garden among the bees, and saw what appeared to be bees swarming. I went to see, and sure enough it was a poverty swarm, which I expect had come from one of the villages round here; I hived them, and joined them to one of my stocks. In years gone by, I have had several swarms come in a similar way, it appears as though they knew by instinct where there was plenty of food. From the 13th to 18th inst., we had a very sharp hazy frost, which has given the bees a good foretaste of winter. On Sunday it was much milder, and the bees were having a fly, and were also busy in carrying out a few dead bees that the frost had snapped off; this last three days they have been very much on the wing too. I was very glad to see Miss Gayton's report.—JOHN WALTON.

Somersham, Hunts.—We have had fine weather on the whole during the past month. Rain fell heavily on the nights of Nov. 5th, 17th, and 18th, and lightly on the following days, Nov. 6th, 7th, 8th and 16th. The average temperature for week ending Oct. 27 was, night, 43·3, mid-day, 57·6; week ending Nov. 3rd, night, 43, mid-day, 52; week ending Nov. 10th, night, 34·4, mid-day, 49·6; week ending Nov. 17th, night, 29·4, mid-day, 46·8; Nov. 23rd, night, 32·6, mid-day, 47·1. The first frost was on the morning of Nov. 8th. The lowest temperature during the month was 21° shown on the morning of Nov. 12. The highest mid-day temperature during the month was 60° on Oct. 25, the lowest 44°, being shown on Nov. 10th and Nov. 20th.—C. N. WHITE.

Queries and Replies.

QUERY No. 722.—1. *Pipe-cover Cage.*—In your third reply to Query 721 you state the bees should have been left to liberate the queen from the pipe-cover cage themselves, and she would have been received. How could they do that, and would they release a foreign queen if placed on comb under cage? In changing queens is it better to let the bees liberate the new queen? 2. *Candy.*—Instead of candy made from loaf-sugar, would it not do to give bees crushed loaf-sugar or good soft sugar in a feeder? 3. *Soft Sugar.*—Which of the soft sugars approaches nearest to bee sugar candy? 4. *Wood for Hives.*—With a view to economy, next to yellow pine which is the best sort of wood to put in hives, and what is the usual thickness of boards employed?—J. B., *Dublin.*

REPLY TO QUERY No. 722.—1. The pipe-cover cage being pressed into the comb, the bees will bite away the comb and release the queen: with this form of cage it is better to let the bees release the queen. In the Raynor and other cages you release her yourself. 2. Crushed loaf-sugar is not so good as well-made candy or sugar-cake. 3. None of the soft sugars are so good. 4. Any wood will do, so long as it is well seasoned and free from shakes. With double walls ½-in. stuff is thick enough.

QUERY No. 723.—1. *Old Combs.*—When does a comb get too old and should be discarded? 2. *Drones.*—Do drones join a swarm, or do they remain in the old hive? 3. *Inserting Drone-foundation.*—Having only worker-comb in my one hive (bar-frame), when must I insert drone-foundation; and how much of it? 4. *Breeding Drones.*—Is it necessary to breed drones at all if there is an apiary of thirty hives quarter of a mile off? 5. *Honey-Glut.*—What are the signs that a honey-glut has begun; and how long does it commonly last? 6. *Artificial Swarming.*—How early may I artificially swarm a bar-frame hive being prepared to feed?—S. L., *Southlea, Malvern.*

REPLY TO QUERY No. 723.—1. Combs may be used with advantage seven or eight years. After this the cells become so small, from the accumulation of cocoons, that the young bees are diminutive in size. It has not, however, been proved that they remain so through life. 2. A certain number of drones go with every swarm—a smaller number with the first than with after swarms. 3. You will probably find drone-comb in some part of your hive. When frames are quite filled with worker-foundation the bees will generally build a small number of drone-cells. Do not insert drone-foundation. 4. There is not the least necessity. If the nearest bees were five miles distant your queens would mate. They have been known to mate at seven miles. 5. The greater activity of the bees and their unmistakable energy. Also fine bright weather, with warm nights, absence of frosts and cold winds, with occasional refreshing warm showers. There is a peculiar state of atmosphere redolent of honey, well known to old and experienced apists, but which cannot be described in words. 6. This must entirely depend upon the season, the bees, and the locality. In some years the early part of May; in others, not until the beginning or middle of June. Whenever the bees show signs of natural swarming, overcrowding, activity of drones, &c., is the proper time. Much injury is often done, even by advanced apists, by dividing too early. Our object should be not so much to anticipate as to assist nature.

QUERY No. 724.—*Two Queens.*—On examining an Italian hive yesterday, I was astonished to find two queens and a few drones. One was a dark and the other a light Ligurian. If you can explain this in your next publication I shall be glad. I have separated the queen by excluder zinc and purpose making two colonies of the hive in the spring. Is this the best thing to do? My hives have store enough for January, had I then better feed with syrup or candy?—ALFRED CORNER, *Manor House, Inglescombe, Bath.*

REPLY TO QUERY No. 724.—This is not an unusual though infrequent occurrence. At the present time we have a similar case in our own apiary. On the last examination both queens were laying within an inch of each other on the same comb at peace one with the other, and the bees free from all excitement, and paying equal court to each queen. One is an imported Italian of last year, the other evidently her daughter. We are leaving the bees to decide which they will retain, and advise you to do the same. In our case there is an absence of drones, but plenty of worker-brood, and the young queen is evidently fertile. In yours, from the presence of drones, this is doubtful, so that if you remove either, it may chance to be the wrong one. Withdraw the zinc, and do not attempt to make two weak colonies instead of one strong one, which is far better; but let the bees arrange the matter for themselves. If the young queen is fertile they will destroy the old one; if not they will retain her, and, although superannuated, she may last till spring and lead off a swarm, or, at all events, supply eggs for raising a young queen. Do not disturb the hive afterwards until February, and then give candy on the frames beneath the quilt.

NOTICES TO CORRESPONDENTS & INQUIRERS.

G. R. BAILEY.—The plain cake referred to is made exactly as the flour-cake, but without the flour. Flour-cake is too stimulative for winter feeding, and unsuitable for the reason given in reply to W. H. Radford. Flour-cake is not recommended for feeding in winter in the last edition (24th thousand) of *Modern Bee-keeping.*

J. W., *Greenock.—Drones in November.*—You cannot at this season do anything in this matter. You should have united to another stock early in October, at latest. The small remnant, if any, in spring may be united.

KNARESBOROUGH.—*Ivy.*—The specimen sent is the Common Ivy (*Hedera helix*, L.), which blossoms late in the season, and not in spring.

J. G., *Edgbaston.*—The passage between the floor-board and the bottoms of the frames may be three-eighths of an inch.

J. H., *Sheffield.*—We desire to thank you for communication forwarded, but we conceive that now the bees of all careful apiarians are in snug winter-quarters its insertion might not have a beneficial effect. We are looking forward, with some degree of expectancy, towards the spring, when we hope to have the results of your experiments in wintering on your candy. We think that if you look back on the past numbers of the *Journal*, you will allow that we have given you every opportunity for the free expression of your views on the subject.

J. SADDLER, *Forfar.*—Letter received with thanks.

LOVER OF BEES.—Your treatment was the best you could adopt at this season. Foul brood does not affect the queen or adult bees, so they are likely to survive: but in the spring, before breeding commences, you must take steps to stamp out the disease. Full instructions are given in *Modern Bee-keeping*. Let no false ideas of economy induce you to attempt to preserve either combs, honey, or hive.

E. V. B.—*Moving Bees.*—Bees not now being on the wing, a fortnight hence will not be an inopportune time for the removal of your hives to their new location. The distance, four miles, is not great, and the time occupied in the journey need not be long. At the same time it is desirable, especially if the combs are not old and tough, that the frames should be fixed and kept from the possibility of swinging, and care should be taken that the hives be sufficiently ventilated. Select a smooth road, and if conveyed in a cart it should proceed slowly. Towards sunset would be the best time for removal.

ANXIETY.—1. *Unbleached Calico.*—It is not at all necessary. Unbleached calico is best. 2.—*Covering for Skeps.*—Yes; your plan will answer well. Warmth and dryness are all that is required. The sacking and waterproof box will afford sufficient protection in all weathers.

WORKER.—The excluder zinc as advertised some time ago by Messrs. Treggon in the *Journal* was the correct size.

BETA.—*Dysentery.*—By giving the bees on a fine day warm syrup copiously they would be induced to take a cleansing flight. Dryness of hive, warmth, and salicylised syrup are requisite for their restoration to health; if possible, the combs should be sprayed with salicylic solution. Consult Cowan's *Guide-book* (p. 123) for recipe for proportion of salicylic acid given in bee-syrup.

END OF VOLUME XI.

It having been considered desirable that the next Volume should commence in January, 1884, the following Number will contain the Title and Index.

BEE-KEEPERS' GUIDE; or, MANUAL OF THE APIARY. 10,000 *sold since* 1876. Eleventh Thousand just out. Tenth Thousand sold in just four months. More than fifty pages, and more than fifty costly Illustrations, were added in Eighth Edition. The whole work has been thoroughly revised, and contains the very latest in respect to Apiarian Science and Art. The work contains 375 pages, and 191 elegant Illustrations. Hundreds of copies of this work have been sold in England, and the many improvements will make it even more popular in Great Britain and on the Continent. Price by mail, $1.25. Liberal discount made to Dealers and to Clubs. Address A. J. COOK, Lansing, Michigan, U.S., Author and Publisher.

State Agricultural College, *Nov.* 10, 1883.

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THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

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Editorial, Notices, &c.

END OF VOL. XI.

In the month of August we mentioned that the advisability of closing the present volume at the end of the current year had been suggested to us; and this suggestion was accompanied by so many excellent reasons that, having given the matter our best consideration, we have resolved to comply with it. The volume, though only extending from May to December, will, in consequence of the double issue in the month, contain a greater number of pages than any of the previous ones.

On scanning the index of the volume, embracing as it does every branch of apiculture both foreign and domestic, our first feeling is one of sincere gratitude to our numerous friends and correspondents, who have so kindly assisted us in our duties, and who have cheered us in our onward path by their sympathetic appreciation of our labours. We are continually receiving, and from all quarters, communications testifying to the valuable lessons to be gathered from our pages. It behoves us, therefore, to tender to one and all of those who have contributed to this result our best thanks for that kindness and goodwill which has enabled us to overcome many an obstacle, and which has stimulated us to go on our way with hopefulness and rejoicing.

A glance at the contents of the present volume will show the magnitude of our labours. In it will be found, focussed as it were, news from the whole of the habitable world. We have culled our posy from all fields. We have given the essence of the best bee-productions of the Continent and America. We have presented full reports of the work of the County Associations of our own land. We have endeavoured to do justice to every scheme which has for its object the advance of Apiculture. Especially have we desired to direct attention to the great educational value of the interesting experiment called 'the Bligh Competition;' and we hope that one of the chief features of the coming year will be a repetition of it on a broader basis and with better understood principles.

We hope that the coming year may be one of prosperity to all classes of bee-keepers; and we embrace the present opportunity of wishing our readers a Merry Christmas and a Happy New Year!

ASSOCIATION DEFICIENCY FUND.

The following is a list of new Life Memberships and of Donations to the Fund:—

J. N. Bower, Esq.; E. Bostock, Esq.; H. Bostock, Esq.; Duke of Buckingham and Chandos; A. H. Heath, Esq.; C. H. Hodgson, Esq.; Rev. F. G. Jenyns; Rev. W. E. Medlicott; T. Nottidge, Esq.; C. P. Ogilvie, Esq.; Col. Pearson; Col. E. Smyth;

Mrs. Thos. Wain	£65	0	0
W. Cartmel	2	2	0
F. L. May	2	2	0
T. W. Cowan	2	0	0
Hon. and Rev. H. Bligh	1	1	0
Cray Valley Bee Farm	1	1	0
Col. Picton Turbervill	1	0	0
Thomas F. Ward	1	0	0
J. Noble	1	0	0
Miss E. Preston	0	10	6
Rev. F. S. Sclater	0	10	6
D. Stewart	0	10	6
Captain Bush	0	10	0
W. H. Phillips	0	10	0
Col. Merrick	0	10	0
Isaac Rodham	0	7	0
G. H. Gadd	0	5	0
J. C. Arber	0	5	0
Miss Octavia Peel	0	5	0
F. Leete	0	5	0
A. Rusbridge	0	5	0
W. H. Dunman	0	5	0
Miss Gayton	0	5	0
W. Soar	0	5	0
W. H. Williams	0	5	0
G. Drinkwater	0	5	0
W. Hollands	0	5	0
Rev. P. M. Filleul	0	5	0
S. J. Baldwin	0	5	0
	£82	19	6

The following members have increased their subscriptions,—Rev. F. S. Sclater, W. Carr, Capt. Bush.

We have given above a list of the new Life Members and of the Donors to the Deficiency

Fund; besides these there are many Members who have intimated their willingness to increase the amount of their subscriptions during the coming year. While sincerely thanking those who have thus promptly and liberally come forward to help the Association in this its time of need, we cannot forbear from noting that very few of those who are more especially benefited by the work of the Association and of those affiliated Associations which have been called into existence by its instrumentality, have rendered any assistance in reducing the deficiency. Hive-manufacturers and purveyors of bee-appliances are those who have reaped the greatest amount of profit from the establishment of the Association, and it is but natural that it should look to them for sympathy in a time of emergency; and it is scarcely to be expected that the Association will impoverish itself for their advantage by continuing to hold the Annual Metropolitan Show if they do not come forward in the present crisis of the history of the Association, and manifest their appreciation of the work that it has accomplished.

We are pleased to see that this matter has been brought before the notice of some of the County Associations, and we would be much gratified by perceiving that these Associations reciprocate the benefits conferred upon them by the parent Association.

It is earnestly to be desired that the onward work of the Association should not be retarded or impeded in any way, and therefore would we earnestly appeal to all bee-keepers, and to all who regard bee-keeping as a benefit to the agricultural classes, for help towards the diminution of its present indebtedness.

It is purposed to close the list by the end of the year, and therefore it is desirable that all who contemplate forwarding their contributions should at once proceed to do so. The Association should by that time have at least 100*l.* towards the Fund; and it does not appear that there should be any doubt as to its achieving this result.

BEE-CULTURE IN INDIA.

From the 'Pioneer' (India).

(*Continued from p.* 270.)

'It does not appear that there is any prejudice against using the products of the honey-bee; honey is eaten by the natives; in some parts large quantities are consumed at wedding festivals; it is eaten with rice, with bread, and with fruit; it is used to preserve ginger and fruit; it is very widely used as medicine; for offerings to and for anointing idols. Wax is used for making wax-cloth, in ointments, by shoemakers, &c. It is commonly adulterated, so that it is difficult even in Calcutta to get wax sufficiently pure for making artificial combs for bees. It appears many attempts have been made by Europeans to cultivate indigenous bees, but these attempts have not been very successful, judging from the meagre accounts given of them; in no case have the appliances which make bee-keeping certainly profitable been applied, and the hives used are either out of date or never were in general use anywhere. Several reporters seem to think the frame-hive used all over Europe and America very difficult to make, and requiring great exactitude; whereas any native village carpenter could make a hive as good for practical purposes as any sold by the hive-makers in England. A tea-chest or two beer-cases would supply the wood. The books referred to are also far from the latest and best. Mr. Cowan's little book (1*s.* 6*d.*) and *Modern Bee-keeping* (6*d.*), which are the best practical works in English, are never mentioned, to say nothing of the learned works published in Germany and America, the Bee Journals and the Bibliography of Apiculture published in Italy. The following experiments were made by Europeans:—Mr. Freud had when writing one hive; he had kept bees for many years on the Nilgiris, but gives no particulars of yield, hive, variety of bee, or mode of manipulating. Mr. Freeman kept a stock of bees which swarmed on his premises. The Superintendent, Government Gardens, Octacamund, a few years ago, kept a stock for three months in a deal-wood box; he fed them with syrup, but they ungratefully absconded, leaving a few empty combs. They probably became queenless and could not raise another queen. Miss Cockburn, of Kotagiri, Nilgiris Hill, has hived bees in wooden boxes for years; her system is simply to remove all the combs but one as soon as stored, leaving one to prevent the bees absconding. This method has the one merit of simplicity, but it is no better than the native methods, and cannot be very profitable, excepting on the old principle that robbery is all profit. Mr. Harvey, N.W. Provinces, kept as many as thirty hives in the Chumba hills; he preferred the Giotto hive, a hive made up of separate frames; this hive is very little used, and is unsuited to India, as it is a bad protection against heat, cold, and insect enemies; is expensive to make well, cannot be opened and closed without crushing the bees, and is troublesome to manipulate, Mr. Harvey did not use the extractor or comb-foundation, so the honey yield must have been small; but he considers the sale of this honey would give him a clear profit of 100 per cent; possibly Mr. Harvey would have made ten times this profit with fewer very strong stocks and proper appliances. An attempt to keep a hive of Chumba bees in Mooltan failed; probably they required stimulating food to keep up their numbers; not getting this, they appear to have dwindled, and become a prey to wax-moth and other enemies of weak stocks. Mr. W. Morgan, Deputy Conservator of Forests, Madras, has experimented by using beer-casks as hives, and he proposes a hive made of clay with an appliance for supering. Mr. Morgan's proposed hive would be no better than the old English skep; with it the modern practice of bee-keeping could not be carried out, and the produce would be often nothing, as bees will not work in such supers without some inducements, and there is no arrangement for taking honey from the body of the hive. The Rev. T. Mayer, Bannu, seems to have taken the matter up, and the Punjab Government proposes obtaining model hives and appliances from England. The book used appears to be Hunter's. I would recommend Cowan's book and the German hive of Dr. Dzierzon. The English firms make expensive appliances, many of which are quite unnecessary, and most are too expensive for profitable employment.

'The Government of India reviewing the Reports, concludes "that several varieties of honey-bees are found in every province of India where there is sufficient forest or jungle, and that the honey of some of the varieties is good and in considerable demand; (2) that efforts have been successfully made in the hills by Europeans to domesticate Indian bees, but that the bee-culture is only practised by natives in the rudest way; (3) that it is very doubtful whether the bee could be domesticated in the plains, owing to the dearth of flowers during the three or four months preceding the rains; (4) that in Southern India persons (Mr. Stormont of Bombay and others) have given up all attempts to domesticate the most common variety of bee found there on account of its intractable nature." The Government further concludes the industry is unlikely ever to be one of great importance in India. It can only be followed in the

hills were flowers abound throughout the greater part of the year, or in forests where food is equally plentiful. The Government does not see its way to taking any practical steps in the direction of improving the system of bee-culture in the hills and forests; but opportunity is to be taken of the Calcutta International Exhibition to make further inquiries in the matter. The Local Governments are invited to send specimens of honey, naming, if possible, the varieties of bee which produced them respectively. It is much to be regretted the Government resolution should discourage attempts at improved bee-culture in the plains, seeing that no real trial has been made by an experienced bee-keeper. Botanists, including Dr. King, tell me there are flowers, in Lower Bengal for example, for ten months; that only in December and January do they fail. The rains have apparently now commenced, and as to there being a dearth of flowers before the rains—that is the swarming time, and I found my bees bringing in pollen from, I think, January to the present date—I consider the conclusion erroneous as applied to Lower Bengal. Certainly if flowers existed all the year round, the honey-bee would not need to store food and would be economically valueless, that for four months there are no flowers is an admission which proves, not that the honey-bee cannot be profitably cultivated, but that it can be far more profitably cultivated than in Europe and America, countries having severe winters, during which there are not only no flowers, but the temperature is so low that the bees cannot breed to keep up their numbers, so that it takes two months of spring weather and judicious feeding to strengthen the bees up to profitable numbers. Herr Vogel, one of the greatest German authorities on the subject, says, "Most localities in Germany are honey-poor (*honigarm*), but there is in the wide German Fatherland, indeed, no place in which bees could not be kept with some success." Honey-poor localities are defined as places where all notable honey harvest ceases with mustard flowers, and if from harvest through autumn the bees get enough for themselves and their brood the bee-keeper must be considered fortunate. A neighbourhood is generally said to be honey-poor when there is no honey harvest during autumn, and such neighbourhoods form the greater part of Germany, wher bees are very generally kept by small farmers, teachers, and clergymen, who pay ten marks commonly for each empty hive, build sheds to contain the hives, &c. In England the bees have to be fed up in October and again in February, the stocks requiring six weeks or two months to make up for the winter mortality, during which there is no breeding. As in India generally there is so severe winter in the plains during the two months' dearth of flowers, the bees can be fed on artificial pollen and sugar, and so the breeding being maintained, the honey harvest would last ten months instead of only from May to October as in England, and swarms could be made artificially at almost any time. If without any protection—artificial comb, feeding, stimulating, breeding, and other devices of the apiculturist—the bees collect stores sufficient to offer a prize worth taking, surely it is a scarcely justifiable conclusion that the plains where this occurs are unsuited to bee-culture. As to the attempts made to cultivate bees, I do not think any but most favourable conclusions can be drawn from the cases reported. The Rev. T. Mayer, Bannu, has taken the matter up, and he appears to be acquainted with the subject, but no results are given. As to the native methods, even that of Kashmir, which appears humane, as the bees are not destroyed, is probably inferior to the old English one of killing the heavy and light stocks with sulphur; for the old brood comb must harbour wax-moth and other enemies of the hive-bee. As to enemies the greatest is, I think, the wax-moth, which is very common in nests of the indigenous hive-bee in the plains. I have taken nests almost destroyed by it; but this could be met by giving no more comb than the bees can cover, and contracting the hive. If these measures should not absolutely keep down the moth, then the Italian bee, if introduced and properly managed, would do so, as it has in America. As to the temper of the Indian bees, as a German bee-master said to me, "Bees are bees," and much nonsense is talked on this subject; There is no evidence of any value that the Indian *species of hive-bee* is worse than other species, and I have evidence to the contrary as well as considerable experience, for I have performed most difficult manipulations in transferring combs to frame-hives. I have three stocks of native bees now in Calcutta, and they are very mild-tempered. I handle them without smoke, veil, or gloves. Mr. Stormont, referred to in the Government resolution as having found native bees vicious, does not give information as to his mode of manipulation; and as I understand his report, he simply refers to unicomb bees and not to the kind likely to take to a hive, viz., the multicomb bee, living in holes, in trees, in rock cavities, &c.

'It is quite possible the multicomb bee of the plains may not be so profitable as the bee of the hills; its swarms may be lighter; it may be exceedingly prone to swarm and breed drones, &c. This remains to be proved; if hill bees are much better, then queens of hill bees or small stocks may readily be imported into the plains, and no difficulty will be found in keeping them over a very large area, independent of forest and jungle. Should these be less profitable, as I think very probable, than the European varieties, then the Italian bee could be cultivated, I believe with success; and where mustard, legumes, fruit trees, &c., are cultivated, I believe bees would be found highly profitable.

'As to attempts to introduce the European bee, these have failed from well-understood causes; the late Lady Anna Gore Langton imported some bees when her brother the Duke of Buckingham was Governor of Madras. The experiment failed. Mr. Woodside, a missionary, N. W. P., imported a stock of Italian bees at his own expense, but the bees perished. An Italian exporter tells me he sent bees to India *viâ* Bombay; of the fate of these I have not heard. I imported three stocks and two spare queens with the result that I have two fine stocks which have done very well during the hot weather in Calcutta, and they find both honey and pollen. I have not swarmed them, because the queens are so young that I cannot get any drones; I have not taken honey in any quantity, because I have fed up the bees to make them breed, as naturally I require bees, not honey—the bees being far more valuable than honey. The heat has not affected the bees injuriously; they have done remarkably well, and are a living evidence that the Italian bee can be cultivated in the plains. I find the native bee very prone to swarm, and the stocks are light; it remains to be seen if the native bee can be made as profitable as the Italian; but if not, the Italian may be cultivated. As to the unicomb bees, I do not think *Apis florea* of economic value; *A. dorsata* remains to be tried, as nothing is known concerning the mode of cultivating it; a long thatched open-sided hive would probably have to take the place of the usual closed hive.

'As to hive appliances to commence with, one stock in an English frame-hive should be tried for profitable cultivation; probably a modification of the German hive built of clay or straw, would be found most suitable. As to appliances I think natives should rely rather on the centrifugal extractor, by which honey can be taken from any part of the hive without damaging the comb, than on supering, at any rate at first. I made an extractor for Mr. Hunter for about Re. 1-8; the cheapest English one is 15*s*. I recommend Mr. Cowan's book, costing 1*s*. 6*d*., for beginners, and I strongly dissuade anyone not thoroughly acquainted with the subject from

importing foreign bees; it is not a very difficult matter to order a stock of bees from Europe, but when the few surviving bees reach their destination (if any survive), months of care guided by knowledge and experience, are required to prevent their total extinction, and success is very doubtful. I would strongly recommend planters and others having land to keep bees, and anyone who has a verandah in which to place a hive, or a tree under which it could be placed, may derive much pleasure and a proportionately large profit from a hive or two, commencing with two at most. I have a few books which I lend to persons desirous of trying to keep bees, and I should have much pleasure in giving any assistance in my power to would-be bee-keepers. Mr. Hunter tells me he has eight hives in his verandah; he gets excellent honey, and the thousands of bees going in and out never sting anyone but the sweeper (bees object to foul odours), although persons sit in the verandah near the hives, and servants pass to and fro. If a few European amateurs will show the way, the natives will, I believe in this matter, readily follow. I hope shortly to distribute some stocks of Italian bees, when Mr. Hunter will give them a fair trial in the hills.'

'BEE-CULTURE IN INDIA.'

I have read with interest the articles under the above title that have appeared from time to time in the *British Bee Journal*, especially those of Mr. J. C. Douglas in the number for Dec. 1st. Did time permit, I would gladly detail a number of my observations and experiences in connexion with the bees, bee-hunting, and bee-keeping in India while on a journey there during the winter of 1880–81 after new races of bees, more especially the great *Apis dorsata*. However, though the greater number of these observations have not been printed, on account of my ill-health as well as lack of leisure to put them in shape for publication, I cannot forbear a word or two regarding a few of the points and allusions made in Mr. Douglas' article.

Mr. Douglas speaks of the unicomb bees, *A. dorsata* and *A. florea*, and the multicomb bee, *A. Indica*. It is very probable that each swarm of *Apis florea* only build one comb, as all that I saw had but a single comb, and I was repeatedly told that they did not build more. Moreover, as these tiny bees do not frequent the forests as much as they do the more open country where shrubs and bushes form the greater part of the vegetation, it is reasonable to suppose that they choose the latter, so as to find near the ground suitable twigs upon which to build; and, in fact, all that I found were in such locations. The pasturage of the open country may very likely suit them better, yet as there are always some large trees among the bushes, they might choose elevated places if they wished. As, however, the single comb is generally attached to a small branch or twig, there is room for but one. This at the top is built around the twig so as to envelope it, the cells being deep for storing honey, the thickness of the comb at the top often reaching two or three inches. Below, where the brood is reared, the comb is, however, but three-eighths of an inch thick. The tiny hexagonal wax-cells, of which there are eighty-one on each side of a square inch of surface (160 on both sides), are very beautiful. Of course it is easy to imagine that a swarm constructing a single comb not much larger than a man's hand can never be made very available, even if it can be kept in hives. I succeeded in taking one hive of these bees from Ceylon to Cyprus, and they behaved much better than hives of the two larger species. An accident resulting in the death of the queen at a time when no brood was present in the hive was, of course, the virtual extinction of the stock.

Most of the *A. dorsata* stocks which I saw consisted of but one huge comb attached to a large branch, or to some overhanging ledge of rocks. But this giant honey-bee (it surely deserves the name 'honey-bee,' although it is not cultivated) does sometimes build several combs side by side, for when in Ceylon I transferred into a mammoth moveable frame-hive a stock which had built three parallel combs in a cavity of the rocks. I found these bees in the Kurunegala district at a place known to the natives as Cambera-galla (*A. dorsata* rock). It was a wild forest region, some miles from any habitation, rarely visited, so that I had much difficulty in transporting my hives and implements to the place, and getting up to the top of the rock, which, perched on the side of a mountain, towered up nearly a hundred feet from the lower side, as near as I could judge. The walls on all sides were either perpendicular or overhanging; and I was at first at much loss to know how we were to get up to the dozen or more huge stocks of *A. dorsata*, whose combs depended from two to four feet from one of the overhanging ledges near the summit. But the natives, of whom there were a dozen present, led me by a crevice just large enough to admit a man's body into the interior of the rock, and, by building a ladder of poles and rattans, we reached a sloping ledge some forty feet up; thence winding around we came nearer the summit, and at last found a dark passage leading right up through the centre of the rock. The top was nearly level, and about ten feet square. A cavity enclosed on all sides but one, and partially roofed over, contained a large stock of *A. dorsata*, which of course I had not been able to see from below. The bees drove us down in the daytime, but at night with the aid of a torch and smoke I cut out the combs and fitted them into frames which were placed into a hive hauled up over the side of the rock. I had learned that the best time to approach these bees in their forest lodgment is at night, as they do not fly much then. The frames of my hives were about 12 in. deep by 18 in. long, and so the combs were cut accordingly. I think larger frames would have been better, but not so easy to transport. As the *A. dorsata* comb is one and three-eighths inches thick, the bars of my frames had been made of that width. There were some fifty to sixty pounds of honey in the combs of this stock, and after I had given the bees a fair supply the natives had a nice feast, and some was left over; besides, they eagerly devoured the bits of brood which did not find place in the hive.

As this was towards the close of the season when the bees find little honey, just before the swarming season, it is fair to presume that the amount of honey would be much greater at most any other time, and the huge combs would have made a nice lump of wax. We secured but one other stock of the dozen that were on the overhanging ledge of rock; the risk to limb and life being too great to try for any more there, so we moved on to other localities. Once in moveable-comb hives, I did not find *A. dorsata* intractable, but there are other reasons why its culture *may* never prove successful, although it is an experiment worth trying.

The little *A. Indica* builds its parallel combs (five-eighths of an inch thick, thirty-six cells on each side of a square inch) in hollow trees, rock cavities, etc., and is cultivated to a certain extent in earthen pots, wooden skeps, etc., yet I do not believe with much profit. The queens are prolific, and the workers industrious, but it is what the Germans would surely call a *swarm-bee*. And if kept in moveable-frame hives, the great difficulty, as Mr. Douglas well remarks, would be the absconding of the bees at nearly every manipulation, notwithstanding the presence of brood and honey. I have lively recollections of getting the bees of a recently transferred stock whose combs I was fixing a little, back into their hive six times in succession one morning, performing in these processes a good many gymnastics on the roofs and trees in the vicinity of my apiary. Before I learned

of this peculiarity of *Apis Indica* I formed quite a favourable opinion of it, though, from all that I saw, I should think 24 lbs. reported as its yield in the Wynaad rather high, though, of course, I judge merely by the amounts I saw in the combs of the stock I captured. As the cause for absconding seems to lie in the very excitable nature of these bees, I would recommend the use of smoke only when absolutely necessary. They can generally be driven from combs by blowing them strongly, and become less excited than when smoked. They can be brushed or shaken from the combs easily. As the worker brood-combs are but five-eighths of an inch thick, the bars of frame-hives intended for these bees should be but five-eighths wide instead of seven-eighths to one inch, as for *Apis mellifica*, and the spacing but one-quarter in. to three-eighths at the most.

In Ceylon I found two parties who had got out hives from England, which of course were adapted to *Apis mellifica* and had frames whose bars were seven-eighths to one inch wide, and spaced so as to remain three-eighths to half-inch apart. Of course, these parties could not understand why their bees would not do the way the books said other people's bees were accustomed to do, that is, build the combs regularly and but one in a frame, never once dreaming that, not only were they not of the same race, but, even more, they belonged to quite distinct species.

Whatever may be the result of any attempt to cultivate the honey-producing bees native to East India, I still feel sure that, in the hands of a bee-master of sufficient experience and knowledge of principles to enable him to adapt himself, or rather his management, to circumstances, any of the races of the species *Apis mellifica* can be made to thrive in India. Certain I am that those stocks of *Apis mellifica* which I took to Ceylon thrived very well indeed during the time I had them under my observation.

I look forward to the time when bee-culture in India will be a source of no inconsiderable revenue; in fact, I fear the time will yet come when 'Brother Jonathan' across the water will find that his tons of delicious nectar will have to compete in the English market with tons of sweets gathered on 'India's coral strand.'—Frank Benton, *Munich, Germany, Dec. 10th*, 1883.

AMONGST THE SWISS BEE-KEEPERS.

III.—Zurich Exhibition.

Temporary Exhibition.—During the permanent exhibition, there were organized temporary exhibitions in connexion with the department of agriculture, so as to show the produce of the current season. There were also shows of horses, cows, fruit and farm-crops as well as of bees and honey.

The bee exhibition was held in the garden adjoining the main building, and not very far from the permanent exhibition. It was very nicely arranged considering that the space was so limited; and it would have had a much better effect if it had not been so crowded. The hives were so close together, that there was no possibility of examining them without lifting them down from the stands on to the paths, a task not easy of accomplishment when the place is crowded with people. Fortunately for me, it rained during some part of the time, so that I was able during this period to examine some of the hives, bees, and utensils. In this exhibition, there were 138 exhibitors divided as follows:—Living bees, 32; honey, 33; wax, 12; hives, 16; pavilions, 5; extractors, 10; various articles, 30.

One remarkable feature of this as well as the permanent exhibition was the number of prizes distributed. For instance, in the hive classes there were 21 exhibitors, and of these 11, or more than half, received prizes. One a silver-gilt medal, 1 silver medal, 3 money prizes of 20 francs, 5 money prizes of 10 francs, and 1 honourable mention. Certainly the money prizes are not as large as those given at our shows, but a greater number of exhibitors are pleased; still I cannot think the honour of winning a prize as great as when there are fewer prizes offered, and these of a reasonable sum, so as to insure a keen competition. In the classes for living bees, there were 32 competitors, 22 of whom got prizes. Of the 138 exhibitors, just one-half, viz. 69, were fortunate in receiving a prize. Were we to offer the same proportion at our shows, I suppose even the galleries in the Horticultural Gardens would not be large enough to contain all the exhibits which would be sent. The work of the judges would also be greatly increased. At Zurich the judges devoted the best part of three days to awarding the prizes, and commenced work at six o'clock every morning. What would our judges say if they were asked to do this? Here were, however, six gentlemen who for the love of the science could come a whole day's journey, and devote their time to doing their work properly. The judges were MM. E. Bertrand, H. de Blonay, F. Dumoulin, Pfarrer Jeker, Ph. Ritter, and Pasteur Willi; M. Jeker being chairman.

Living Bees.—These were shown in a variety of hives, but none in Observatory hives such as we usually see at our shows. Most of them were in the German style of hive; and I had the opportunity of seeing the inconvenience of manipulating these hives. Of course, to find the queen, the frames had to be taken out and examined. Each frame had to be drawn out by two pairs of pincers, and both sides of the comb examined. This had to be put down while the next one was taken out. To find out the quantity of brood, perhaps all the frames had to be removed which certainly did not improve the temper of the bees. How much time might have been saved if Observatory hives, such as we use, had contained the bees. The queen can be easily found, and both sides of the combs seen without even disturbing one bee. There were different sorts of bees, common black, Carniolan, Ligurian, and Heather bees, but I did not see any Cyprian or Syrian bees. Carniolan bees seem to be great favourites; but all admit that in ordinary hives it is difficult to prevent them from swarming. Some have, however, succeeded doing so in the Layens hive, which contains twenty large-sized frames. There was one hive called an Observatory hive, but this was an ordinary hive with glass sides. Considering the trouble of sending live bees to exhibitions, it is creditable of the Swiss bee-keepers that 32 colonies found their way to this exhibition in good order. The railway officials also seem to take more care of such things than they do with us, where to label an article 'Glass with care' is almost sure to insure its being smashed.

Hives.—These were very much the same as those I described in the Permanent Exhibition. There was, however, a very handsome pavilion containing thirty-six hives with a comfortable room behind for manipulations. The front was gorgeously decorated, and each entrance painted a different colour. Nor was the comfort of bees neglected inside, for the windows were fitted in such a way that no bee could weary itself by beating against the glass until it finally dropped down exhausted, but, by an ingenious arrangement of panes and openings, a bee could easily find its way out, but no bees could get in. There were also some excellent hives made with straw sides, about 1½ inches thick, by means of a machine, which was also shown. Such sides could be easily applied to our hives, and would satisfy a great many who prefer straw to wood. Gravenhorst's 'Bogenstülper' was also shown, but it is difficult to understand how any one can prefer to turn a hive upside down to take out a frame to using a simple hive opening from the top. Straw hives of good size and substantial make were also shown. These are certainly better made than most

in use with us, and are seen in large numbers ranged on shelves against the houses in some villages.

Extractors, &c.—Of the ten extractors, five received prizes; one of the best on the American pattern securing a second prize. Amongst the miscellaneous, there were the usual small implements as well as a wax-press, a solar wax extractor, Faris' mould for making wax foundation, a set of rolls for the same purpose, and the machine for making straw sides for hives. This was very simple having upright T-pieces 1½ inches apart, the distance between each pair being about 6 inches. The straw is placed between the T-pieces, a bar put on the top of the straw, and the whole pressed down tight by means of a screw. The straw is then sewn with wire or cane or even cord, and the ends cut even. The top is then loosened and the sides perfectly solid and strong taken out.

Amongst the more scientific work are particularly worth mentioning an album of flowers most exquisitely painted by a lady; also, a diary beautifully illustrated by her. During the autumn a course of lectures is given by M. Jeker; and this lady attended one of these courses, and what she then learnt she describes in her diary, which is rendered amusing by her allegorical illustrations. It is very cleverly done, and it, as well as the flowers, are fit for any drawing-room table, and the Bronze Medal she received was worthily bestowed.

Another work which particularly interested me from a scientific view was of quite a different nature. M. Kramer exhibited some boards which to the uninitiated appeared uninteresting; but by carefully examining them and with a little explanation, their object was at once apparent. There is at the present moment a discussion going on here, as well as amongst scientific bee-keepers generally, as to which is the best way of placing the combs in a hive. Combs running parallel to the entrance are termed 'warm construction,' and those at right angles 'cold construction;' and bee-keepers are by no means unanimous as to which of the two is the better plan. M. Kramer wished to determine this point by leaving it to the bees to decide which plan they would prefer, naturally surmising that their reason would lead them to select the best. Several swarms were placed in boxes without frames, and when they had started combs they were removed and placed into other hives. The top boards were then removed, and on them were seen the foundations of the combs that had just been commenced.

The experiments were not sufficiently numerous for M. Kramer to give a decided opinion, but he intends carrying them on, and hopes to be able to settle the point at no distant period.

Honey.—Of the 33 exhibitors of honey, 20 received prizes. There were about 200 samples, and these varied greatly. As in the Permanent Exhibition, there were some honeys of exquisite flavour collected amongst the mountains. We were allowed to taste the samples, all of which were of the current year. Although it was this year's honey, much of it was granulated; and several samples had been liquefied by warming. Some of them had been so carefully heated, that one could not tell but that they had been in the same state as when first extracted; whilst others had a slight taste of caramel, at once testifying to their being over-heated. The honey extracted at different seasons was also well represented and partook of the flavour of the principal flowers. By thus separating the honey, that of the first harvest, and which is usually of a lighter colour, realises a better price than that extracted later in the season. I was very much struck by the absence of honey in the comb, in the neat little 1 and 2-lb. sections we have got so accustomed to at our shows in England. I am quite sure if our Swiss friends were to turn their attention to producing honey in the same attractive state as we do, they would not lack a market for it; and would find it quite as remunerative. Extracted honey, unless its source is known, is looked upon with a certain amount of suspicion, especially as there is such a quantity of what is called 'Miel de table' sold at all grocers' and provided at all the hotels which has never had any connexion with bees, and is made on a large scale from glucose at various manufactories in the country. Those who wish Swiss honey should purchase it of the bee-keeper; or at the hotels, ask for genuine honey, and see that they get it; and not eat the vile stuff that is given to them by unscrupulous hotel proprietors who derive a profit from, and trade upon the gullibility of their unsuspecting customers.

I have already mentioned the valuable services rendered by Dr. A. de Planta and M. Kramer, both from a scientific point of view and in the practical department of bee-keeping in connexion with the exhibition. Of course, it is impossible to adequately recompense such services; but the Judges did something to express their, as well as their brother bee-keepers', appreciation of them by recommending the Commissioners to award to each of them a *Diplome d'honneur* for the important services rendered by them to scientific and practical apiculture. I need hardly say that this recommendation was carried out to the satisfaction of all parties. The Commissioners also awarded a Diploma d'Honneur to M. Jeker for the important services he has also rendered in the various branches of bee-keeping.

The Congress.—The German speaking population of Switzerland being by far the largest, it would be expected that the principal bee association would be a German one; and such, in fact, is the 'Verein Schweizer Bienenfreunde.' This is a flourishing Society, numbering 420 members, presided over since his election at this meeting by Herr Pfarrer Jeker,* one of the most advanced and liberal-minded bee-keepers in the country, who is also editor of the *Schweizerische Bienen-Zeitung*, the official organ of the Society. M. Jeker gives courses of lectures for the Society in different cantons, which are attended by a large number of students; and besides these lectures the Society holds one or two meetings in the year. Taking advantage of their Annual Show, they hold their principal meeting or conference in connexion with that; and it was to this conference that I had been invited.

Arriving at Zurich in company with M. Bertrand, Rev. J. Jeker, and M. de Layens, we at once proceeded to the Exhibition, where I was introduced to, and made the acquaintance of, a number of eminent bee-keepers, who, one and all, received us most courteously, and treated us with a hospitality not soon to be forgotten. Eight or ten bee-keepers lodged in the same house close to the Exhibition, and amongst these, besides ourselves, there were Herr Ritter, the president of the 'Verein Schweizer Bienenfreunde;' M. Blatt, a veteran bee-keeper, who had been the owner of a pavilion containing 300 hives; M. Theiler, M. H. de Blonay, and several others. Of course, at meals bees and bee-keeping were talked of and many ideas exchanged. We generally consider as far as the science is concerned that the German bee-keepers are ahead of us; it was, therefore, with astonishment that I heard them express a doubt as to the cappings of brood consisting of wax and pollen, a fact admitted by us. M. Blatt has since the meeting been making experiments, and admits what he finds in my *Guide-book* to be correct, and cannot understand how it is that they should not have discovered it before, but had to learn it from the English. He also states that he finds queen-cells to consist of pollen and wax, a fact well known to us. About from two to three hundred bee-keepers attended the conference, amongst whom were

* In a future article I shall describe M. Jeker's apiary, and by his permission give an illustration of it.

many ladies; and after the ordinary business of the meeting was disposed of, discussions took place on various subjects introduced by members. The discussions were lively and full of interest, and were carried on in the mother tongue of the speaker. Then came the banquet at which complimentary speeches were made, healths drunk, and glasses clinked all round. It fell to my lot to return thanks for the visitors, which, besides M. de Layens and myself, consisted of Count von Wimpfen, and another Austrian bee-keeper, who had come to assist at the conference. After the banquet the bee department of the Exhibition was visited, and the different exhibits discussed, and in the evening the discussions were continued. A similar programme was gone through the next day, and at the banquet every one was introduced to the company. M. Jeker went round from one person to another, and in a stentorian voice announced the name, each individual standing up in turn under the ordeal of a couple of hundred eyes turned towards him. The ready wit of the remarks made by M. Jeker, which sometimes amounted to a humorous speech, kept the audience in roars of laughter. When all was over, the company separated with hearty shakes of hands, feeling that one and all had in some measure benefited by the mutual intercourse.

On the whole, the week at Zurich was most enjoyable, and I shall always have a lively recollection of the pleasant time spent in the company of M. Jeker, Dr. de Planta, Mr. Bertrand, and the principal bee-keepers of the 'Verein Schweizer Bienenfreunde.'

In my next, I will describe some of the apiaries I have visited, and the state of bee-keeping in the country.—THOS. WM. COWAN.

Foreign.

AMERICA.

TORONTO CONVENTION.

Some of the subjects discussed at this Convention were as follows:—

How heavy should our Foundation be?—Mr. Vandevort says if honey is coming in fast, thin foundation does very well; but when the flow is scarce, they are apt to make holes in thin foundation. D. A. Jones prefers about eight to nine feet to the pound. Mr. Taylor, of Michigan, thought seven feet to the pound was safer, but considered the form of the cell more important than the weight.

Influence of the Soil on Honey.—Prof. Cook thought that the secretion of honey is an evidence of health in the plant, and this agrees with my experience. If we want spider plant, or any other, to yield large quantities of nectar, the plant must be enriched, and the growth strong.

Does it pay to cultivate Honey-plants?—No one could state positively that it ever yet paid to grow plants exclusively for honey. It is well enough to grow honey-plants for the fun of it; but those who wish to do it as a money investment, had better choose some plant that brings a crop aside from the honey.

To prevent the loss of Queens.—D. A. Jones says they breed thousands of queens, and have but little trouble by their missing their hives. They have the hives not much more than six feet apart.

What is the best width for Section boxes?—The decision seemed to be about 2 inches, or a little less, where separators are used; without separators, from $1\frac{1}{2}$ to $1\frac{5}{8}$ inches. A great many are now managing without separators, and it seemed to be the voice of the Convention, that, with proper management, separators might be dispensed with, and, by so doing, a much larger crop of honey be secured.

Ripening Honey.—Messrs. Hart and Poppleton thought that the sun was the very best agent for the purpose. Great care should be exercised in evaporating thin honey over the fire. Mr. Corneil suggested that we should have a standard specific gravity for honey. Your humble servant suggested that there is a vast difference in this respect, for many of the glass jelly honey-tumblers that hold one pound of California honey could not be made to contain nearly a pound of much of the honey we have in our markets; and also that honey stored in a deep tank or barrel would be very apt to be heavy on the bottom and lighter at the top, the heavier portion settling. Mr. McKnight corroborated this statement. Mr. Hart declared that honey will absorb moisture from the atmosphere, if not kept in some dry, warm place. Prof. Cook thinks that no man can afford to wait for the bees to ripen the honey, and also states that no honey should be put upon the market until it has a good body.

To prevent Honey candying.—Several plans were given, but Mr. Jones thought that none of them were sure. Sometimes it will not candy, and then again it will, in spite of treatment. C. C. Miller said, that if you drain off the liquid portion from candied honey, and *then* melt the residue, you would get a much finer quality than could be obtained by any other process. I endorse this statement.—A. I. ROOT (*Gleanings*).

(*To be continued.*)

FRANCE.

Professor Grégory, Director of the Apiary of the *Société d'Apiculture de la Gironde*, with headquarters at Bordeaux, has just presented his Annual Report to the Committee of that Society, which reads as follows:—'This year natural swarming has been extremely rare in our district generally, but still more so in the apiary of our Society, in which, although in the early spring our stocks were in a most flourishing condition, only one swarm has issued. On the other hand, having not met with any serious accident, the actual number of stands remains identical with that of last year at the same date, viz., thirty, all told. Out of the thirty stocks we wintered, only one was found in the spring with a fertile worker. This stock was saved by transfer and the addition of young brood. Foul brood, which of late years had persisted in showing signs of vitality, seems as though it has now completely abandoned our apiary. Upon this point I may mention that in the course of last year I stocked several hives which had previously contained the infection of foul brood. All the precautions I took in those cases consisted in having the hives well washed with boiling water and carbonate of soda. All last year's swarms are now strong and well-established stocks, so that, although their number has not increased during the past season, we were enabled to gather a much larger quantity of honey. Thus, whilst in 1882 we obtained 200 kilos of it, this year's harvest amounted to 400 kilos, that is, an increase of over 13 kilos per stock. (The kilo is 3 lbs. 4 oz.) A proportionate increase of wax has also been obtained. Our classes have been as regular as in the previous years, and have been attended to by an increased number of pupils. In practice I find that transferring and artificial swarm-making are the operations in which pupils, inclined to the use of moveable bar-frame hives, take most interest in. In connexion with practical demonstrations, I may mention that the expenses incurred at the various shows, particularly at the one held by the Philomatic Society, have not been fruitless, for a great number of letters have reached me ever since from distant parts asking for information and supplies of the most approved implements, some of the applicants being Spanish and Portuguese gentlemen who had visited our shows. In the interest of our classes I have this season made some

improvements in some of our bee-furniture, but seeing that the income of our apiary is increasing every year, I hope the committee will see no objection to this course, for it is only by providing our pupils with handy and simple implements that we can expect them to take a keen interest in the pursuit of bee-keeping.'—*Bulletin de la Société d'Apiculture de la Gironde* for November, 1883.

SWITZERLAND.

The Influence of Large Hives upon the Improvement of the Bee Race.

I have frequently been asked whether the suppression of artificial swarming was not calculated to detriment the vigour of my queens and worker-bees. I must say I cannot see in what way such a suppression of swarming could tend to degeneration. In fact, I am rather inclined to think that it should, if at all, act in the opposite direction, seeing that it is the keeping of bees in small hives, which interferes both with the laying powers of queens, as well as with the natural working instinct of the neutral individuals.

Let me take a case in point. In a large hive, particularly when the bee-keeper adds empty combs as the season advances, a queen has at her disposal all the room she requires for her brood. Now, as her only mission is to lay eggs, and nothing else, her natural instinct finds full vent; hence this instinct must become more and more prominent and developed. She feels happy in the midst of her happy progeny. Far, therefore, from diminishing the instinct in question, the suppression of natural swarming, by the adoption of large hives, must tend to stimulate it, for a queen, in an apiary conducted on this principle, her fecundity is continually excited.

It follows, therefore, that a daughter of such a queen must inherit some of her mother's instinct, and prove comparatively more prolific than one reared in a small hive. In fact, I begin to notice this effect in our own apiaries; that is, supposing that the swarms we have hived this season weighing as much as 15 lbs. are to be attributed to this cause.

In such instances as those just referred to our eleven frame-hives could not hold the population with advantage, so that supplementary frames in the shape of supers had to be given them immediately. Last year several swarms of this description have filled two reserve boxes, weighing 50 lbs. each, and, as far as we can judge, at present quite as much, if not more, will be achieved this season. Of course, these swarms are not the produce of degenerated queens, although most of their mothers had been prevented from swarming naturally, and are themselves what we term artificial queens.

Again, the suppression of spontaneous swarming by the use of roomy hives has no more unfavourable effect upon workers than upon queens. Working is the natural instinct of a bee. A small hive will soon become full, and the bees compelled to remain idle, hanging outside the hive entrance for want of room inside.

But they soon get tired of a lazy life, and determine to leave their abode, not so much in order to obey the natural law which commands to 'be fruitful and multiply,' as certain bee-keepers assert they do, but rather because an inactive life is not in harmony with their natural habits.

In conclusion, my belief is that in a commodious hive a queen finds plenty of room wherein to indulge in her laying powers. The result ought certainly to be that this power assumes greater development as generations succeed one another, whereas, on the other hand, a queen lodged in a small hive often finds herself under the necessity of limiting, and even suppressing entirely, the laying of eggs for want of space.

Besides, in a large hive the whole population lives happy, and does not therefore show much inclination to emigrate. Not so, however, in a small abode: here every individual is more or less uncomfortable, and the time soon comes when the number of the discontent exceeds the others, when the only alternative of swarming in search of more adequate accommodation is resorted to.

I cannot but think, therefore, that very little consideration of the reasons I have adduced will convince any one of the necessity which exists for using large hives, not only with the view of rearing large colonies and securing therewith a greater harvest of honey, but also as a means of improving the quality of our bees.—Ch. Dadant, *Bulletin d'Apiculture* for September, 1883.

BELGIUM.

The cause of apiculture has lately found a warm advocate in this country. Here, where agriculture generally is looked upon with the greatest respect, and is nationally considered to be the very soul and leader of our progress, it has evidently been neglecting this branch of its science. Truly there are a few well-conducted apiaries to be met with in Belgium, as well as a fair number of advanced apiarians, but in the country generally the old irrational routines still reign supreme. It is, therefore, with a view to remedy this state of things that at the late Congress of Agriculturists held at Namur the condition of Belgian apiculture was placed on the agenda for discussion. We have before us the interesting and exhaustive report which Monsieur I. De Soignie, President of the Provincial Governmental Division of Hainaut, had drawn up for that purpose. M. De Soignie deserves the thoughtful consideration of the whole of that large and influential section of the community which feels interested in the production of the Belgian soil. M. De Soignie's report to the Namur Congress is divided into three principal sections, the first of which deals with the 'Industry and Usefulness of the Honey-bee.' In his comments under this heading, the author points out the satisfactory results which are obtained of late years from a rational farming of the honey-bee, and dilates upon the invaluable services which, in an indirect manner, it renders to the other produce of the land. In the second chapter, viz., 'The State of Apiculture in other Countries,' M. De Soignie supplements his own observations by voluminous evidence as to what, by means of improved methods, is being achieved in England, France, Germany, Switzerland, Italy, and in the United States of America. We cannot say, however, that we can agree with everything that M. De Soignie states as to certain advantages of superiority claimed for one or more hives worked on the fixed-comb principle, but inasmuch as he admits that the moveable bar-frame hive is the one likely to supersede all others at no distant a date, we have no fault to find with his argument. When describing 'The Situation in Belgium,' M. De Soignie places on record in a lucid manner the general inferiority of Belgian apiculture as now practised, and dwells largely upon the advantages and resources which would undoubtedly be derived by the nation if more rational methods were adopted. In his 'Conclusions,' the report advocates the imparting of apicultural knowledge in the rural elementary schools; the appointment of travelling experts; the admission of bee exhibits at all the agricultural shows, and the distribution of bee-flora seeds by the rural boards in order to increase as much as possible the supplies of vegetation useful for the welfare and prosperity of this serviceable insect. We congratulate M. De Soignie upon the masterly manner in which he came forward in the general interest of apiculture, and trust that his labours may not be allowed to remain a dead letter. For the rest, it is satisfactory that the recommendations of the report have been adopted by the members of the Congress to whom they were addressed, thus testifying the appreciation of the report by that body.—*Bulletin d'Apiculture* for September, 1883.

ASSOCIATION.

CHESHIRE COUNTY BEE-KEEPERS' ASSOCIATION.

The above Association, formed a couple of years ago, held its second annual exhibition of bees, honey, and bee-keeping appliances in connexion with the Altrincham Agricultural Society's show, on the 27th September last. The show was in all respects a most satisfactory one, and certainly formed a most interesting feature of the day's gathering, being patronised by hundreds of spectators to whom the novelty presented had the charm of freshness. Prizes were offered for the best stocks of Ligurian and English bees, for hives and bee furniture of various kinds, for honey in supers and jars, and for new inventions calculated in the opinion of the Judges to advance the culture of bees, &c. Prizes were also offered to cottagers' bees, hives and honey; and there was also a bee-driving competition, for quickest and most efficient way of driving bees out of a straw skep, capturing the queen on her ascent, and placing her in a box provided for the purpose.

Mr. John Nicholson, of Bowdon, had a splendid show of honey in comb and jars, not for competition; and Mr. Eustace G. Parker, of Hale, was a large exhibitor and prize-winner in other classes. Mr. Nicholson received the silver medal for the miscellaneous collection, and was also the winner of the bronze medal for the best sample of comb-foundation. Mr. J. Hewitt, of High Leigh, also deserved honourable mention for his exhibits. He received first prizes for supers and combs; and Mr. George Stocks, of Winsford, was also very successful. In cottagers, the exhibitors were Messrs. John Goulden, Vicarage Lane, and John Thomas Bailey, Priory Street, Bowdon; and Mr. George Stocks, Winsford. In bee-driving, there were two competitors, but Mr. F. B. Carr, of Higher Bebington, was an easy winner. He captured the queen in a very short space of time, and soon made the desired exchange of hives. It was certainly a most interesting operation.

His Grace The Duke of Westminster is President of the Society; Mr. Isaac Bush, Ashley Heath, near Altrincham, Treasurer; and Mr. Frederick Johnson, 22 Railway Street, honorary secretary.

Correspondence.

*** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

THE BLIGH COMPETITION.

Now that the Bligh Competition is over and the prevailing feeling is that it ought to be repeated, I think a little friendly criticism will not be out of place; I do not wish to put a damper on the best thing that has been devised for the advancement of apiculture, but rather point out its weak points, so that the future competitions will be more perfect.

In the first place, I fail to see where any competitor has observed Rule 8, which says, 'Every amount expended in the apiary for food or any other incidental matter *of whatever nature shall be charged against the apiary*;' and Rule 7 provides for 'workmanship' being valued by the secretary of the County Association or an expert; so if Rule 8 is to be strictly interpreted, all and every item of time occupied in the apiary should have been put down, valued, and debited against the apiary.

This point is of the most vital importance, for without any means of knowing how much time it takes to manage a given number of hives, how are cottagers or the public to be able to judge whether bee-keeping is not a losing occupation? or whether it is likely to pay any better than—say growing beetroot?

Bee-keeping as a hobby or pastime is all very well in its place, but the object set forth by the B. B. K. A. is to benefit the cottagers by bee-keeping; and if we are to be able to stand up before the public and preach this we must be able to show that bee-keeping is likely to be a benefit to those who practise it in *£. s. d.*

If we ask a cottager to join a Bee-keepers' Association, he asks what benefit he will receive by doing so? It is all very well to put books and papers in his hands and send an expert twice a-year to look at his bees and give him advice (which said expert may a few hours before have handled a foul-broody stock and be the means of ruining his whole apiary), or make him stare by the amount or beauty of your sections; if cottagers are as a rule ignorant they are quick-witted and shrewd, and they will not be long before they see that to get such results the greatest care and attention are required. One may come occasionally to ask you a question, and he always finds you doing something or other for your bees, and he very soon asks himself whether the honey you get will pay for the time and trouble spent; and he will say until he is satisfied you make it pay, he will stick to his skeps and the sulphur-pit.

I think we are bound in some tangible way to show that *modern bee-keeping* will pay, and if Association funds were used to encourage economic bee-culture rather than nasty cheap hive-making, it would be a step in the right direction.

Then quite a number seem to have misunderstood Rule 6, which says, '*All* expenses incurred after commencement of the competition *must be defrayed* from the original capital of 2*l.*;' the plain reading of this is, that the Dr. account must not show over 2*l.* to have been spent; and some of the competitors seem to have understood it so, but the Judges do not.

Then Mr. Melbourne seems to have exceeded the spirit, if not the letter, of the rules, for he appears to have started with an Italian queen and gone in for selling bees, brood, exhibiting, and I might say also dealing in queens, for he appears to have bought a queen in the month of July, and debited her according to Rule 6 at 4*s.*, and sold one in September for 6*s.*; he does not seem to have had much honey, but at the same time he used very little artificial food. I have drawn attention to this case because I do not think the competition ought to be worked on any but honey lines, and that for the purpose all honey should be valued alike, whether it is sold or not, viz. comb-honey at so much per lb., and extracted at so much, for it appears Mr. Hooker's honey is valued at just double that of Mr. Kirk Allen, though it does not appear that it is worth any more.

Then where are the remaining ten out of the seventeen competitors? Having started in the race, surely we are entitled to know how they ran, and why they failed to pass the winning post? We do not know who they were, though it is notorious that Mr. Abbott was one, with his wide-ended frame-hive. Is there no means of knowing? If so, how is it the diaries of the remaining ten have not become the property of the B. B. K. A. according to Rule 5? There is always a deal to learn from a man's failures, and we want to know the cause of them so that we may be able to judge of the probable chances of success; and I am sure it is far from encouraging if out of seventeen expert bee-keepers, ten of them, including such a thorough, practical, experienced, and I might say 'champion,' bee-keeper, as Mr. Abbott, fail to finish, instead of the competition lifting bee-keeping up, it has let it down, and it behoves everyone to help to reorganize another. Let the prizes be liberal; let the rules be strict

and published in the *Journal* for criticism before being adopted; let only wax and honey getting be the source of profit; let every particle of time used in the various manipulations be put down at so much per hour; make it compulsory for every diary to be given up to the Association, so that we may be able to profit by the failures as well as successes; and let a subscription list be opened at once for the prize fund.—JOHN HEWITT, *Sheffield*.

SUPERING SKEPS.

For the encouragement of any who may have been disheartened by failures with sectional supers on straw skeps this year, I will give the result of a bargain I made with a disheartened skeppist last Christmas. He is a farm-labourer owning some seventy skeps, and who annually committed his surplus stocks to the sulphur-pit till the British Bee-keepers' Association and its experts taught him better three years ago.

Early in 1882, I helped him purchase on easy terms eight of Blow's sectional supers made specially for skeps. This season unfortunately was a very bad one, and by not putting the supers on in time he failed to secure what little honey he might otherwise have taken. It was his first attempt with sectional supers, and they had utterly failed. In an unlucky moment he decided to have nothing more to do with them and sold the lot. Having more faith in them and wishing to prove to him their utility in the most practical way, I made the following bargain. I was to provide eight more similar supers and a travelling crate, and pay him a rent for each skep occupied by my supers, and to pay him one-fourth of the value of all honey taken in the supers. He was to select skeps, put on supers, to take off and crate sections. He was well pleased with his prospects, for the rent, although only 2*s.* 6*d.* a hive, would, if the bargain had extended to all his skeps, have added twenty-five per cent to his year's wages.

When I settled up my account with him, I also had good reason to be pleased with the bargain, for I received seventy-five beautifully sealed 1 lb. sections, which at 1*s.* 4*d.*, was worth 5*l.* Out of this I had to pay him for rent and his share of honey only 2*l.* 5*s.* I proved the success of my venture more clearly to him by coins, showing that if he had invested 35*s.* in supers and crates, he would have reaped a harvest of five sovereigns, and that he would only have had to buy sections to refill them for another year. What pleased me most was that he asked for my eight supers in part payment of his share, showing that he was convinced of his folly in having been disheartened by one bad year.

He now has two bar-frame hives, buys two more this winter and looks like doing well. Our cottagers find that by taking off the perforated zinc, the bees enter the supers much more readily, and this year not a queen entered to spoil any of the sections; but I find none of them put them on quite early enough.—H. JONAS.

JOTTINGS FOR THE *JOURNAL*.

Black Honey.—During last season we heard many complaints about black honey, most apiarians ascribing it to the bramble. Having a few combs affected with this inky-looking stuff, but which had a most delicious flavour, I felt some curiosity as to the kind of flowers it was gathered from, and at first rather inclined towards the general consensus of opinion, the bramble. After a year's inquiry of various bee-keepers, I am disposed to think that the bramble theory will not hold good for bee-keepers. Where brambles abound there was none of the black honey, whilst where the black honey was most abundant bramble-bushes were at a discount, but oak-trees in abundance, and careful investigation brings forth the evidence that where there was most oak there was the most black honey. Ques. Is it not probable that the black honey was a honey-dew gathered from the oak-leaves, or from the galls themselves, for they abound in tannin? Perhaps some other bee-keeper can give confirmatory evidence.

Wasps.—Another item in a recent *Journal:* a correspondent calls attention to wasps on the cotoneaster-tree, and asks the reason. I do not profess to analyse the reason in a wasp's brain as we can do that of the *genus homo*, but during the sunny weather this last summer my better half and I derived considerable pleasure in watching a mason wasp burrow in the freestone or cement between the stones of our house wall, and after excavating to his satisfaction, deposited an egg at the bottom of the cavern; then fly to and fro to a cherry-tree, each time returning with a small green caterpillar, which he entombed alive to keep company with the egg and afterwards feed the larva. After a few caterpillars were brought, she deposited a second egg, and afterwards packed the hole quite full of live caterpillars; and then brought clay from an adjoining pool, and hermetically sealed them down. The quantity of caterpillars that single wasp packed in the various holes she excavated would be quite a benefit to horticulturists, and showed how even a wasp in the divine plan of the universe could be of utility to man. Verily nothing is created in vain, and presumptuous man is not so wise but that he has many things to learn, and the more he learns the more humble he will become.

Bee Show.—Then we have had a bee show in the district, which created quite a sensation, and the humane (*sic*) system was very freely criticised, for in the driving business, owing to the tent having a close top, the floor was black with murdered bees, some with just a vestige of life, others utterly unable to gain the clustering bees, but beat themselves to stupidity against the top of the tent in their vain endeavours to find exit. The result was a scene of carnage worse than the sulphur-pit. However, it set some bee-keepers to try their 'prentice hands at driving, and dire has been the anguish, and the bravery displayed by warriors bold after honey or bees intent would form many amusing articles for the pages of the *Journal*. As a sample, whilst rambling through one of Yorkshire's lovely dales, accompanied by my camera screwed on the top of a tripod ready for action, I was accosted by three dalesmen, and after some conversation I inquired where So-and-so resided. 'Oh! you'll be the bee man?' 'Yes.' 'Then you'll be going to drive t' bees?' 'Yes.' 'Houp you'll have more luck than we.' Then followed a story of adventure that would have tickled a smile into the countenance of the most sedate Quaker, which culminated in hearing two of my companions in a side whisper say, 'Twarnt likely we'd drive them darned bees when we hadn't an *instrument*,' eyeing with a significant look my camera. I could have roared with laughter, when one of them politely said, 'Mister, how d'ye use that there?' Evidently the camera has not often been seen in that dale.

Nibbling Sugar-cake.—Not more incongruous is the language used in a recent *Journal* by a brother bee-keeper when he recommends sugar-cake for the bees to *nibble* at. Shade of Darwin, come forth from the misty deep, and hear of the great discovery in evolution, one of the missing links found at last, even in the honey-bee, which from time immemorial has been the same honey-bee, and now I hear it is developing into a rodent, and taken to nibbling sugar-cake! Like the story of the sailors' parrot who had accompanied the tars to the theatre, and heard them applaud and wonder what next. At last the theatre blew up, and landed poor Poll at some distance, where, upon sorting up her feathers, she solemnly said, 'That's good; I wonder what next.'—W. CRISP, *Yorks*.

CORRECTION.—See *B. B. Journal* for 1881, January number, p. 173, for the article mentioned in 'Jottings' on the superiority of the Italian bee.

HOW TO PREVENT SWARMING.

The tendency of bees to swarm during the honey season is a source of annoyance and loss to the bee-keeper, who is anxious to secure the nectar which he knows is filling the flowers close to his apiary. Possibly for a week all goes on merrily: hives are rapidly increasing in weight, sections are filling, and everything looks bright and prosperous, when away go half the workers in a swarm, and the owner's hopes are blighted. The question is often asked, How can I prevent swarming, and keep the worker-bees to the hive? Several methods have been suggested and recommended, but to most or all of them there are objections. Some advise taking away the queen. If that is done, the bees will start queen-cells, making it necessary to search carefully, and cut away all cells except one; or the hive may contain a valuable queen which the owner is anxious to preserve. Mr. Abbott, I think, recommended a queen-excluder behind the first bar placed across the hive, but many objected to it because it also shut in the drones.

What I recommend is a case of excluder-zinc (for British Standard size) $14 \times 8\frac{1}{2} \times 1\frac{1}{2}$ in. to hold a frame with queen and bees. This can be hung in the centre of brood-nest. The bees will thus have access to the queen, and can pass in and out the hive freely; yet the queen will be effectually prevented leaving the hive with a swarm. I would advise a frame without eggs or brood, thus giving the queen an opportunity to continue laying. To keep up a fair supply of young bees, the frame could be taken out when filled with brood, and replaced with an empty one, returning the queen before closing the cage.

There may be objections to this plan; if so, I shall be pleased, for the benefit of others as well as myself, to see them pointed out in the next issue of the *Journal*. Should the above mode be favourably received, I shall be pleased to send sketches, describing the best mode of making and fixing the same to the frame.—L. WREN, *Lowestoft*.

'THE BEE-HIVE,' POLLOKSHAWS.

I enclose cutting from the 'Rutherglen Reformer,' of August 31st, 1883, thinking same may be of interest to your readers. I took a run out to Pollokshaws and verified the statement of 'Thornliebank.' The bees belonged to a Mr. Cunningham, blacksmith, and first made their appearance inside the window of Mr. Smith's shop about 11.30 a.m.; shortly afterwards a few of them flew away (leaving the queen, however), and about 1.30 returned, bringing with them the entire swarm. The door was left open, but none would enter thereby, but preferred the bolt-hole, of which the following is about the size:—As you will understand, their entrance occupied some time, during which traffic was completely stopped.—THOS. WALLACE, *Dennistown, Glasgow, 24th September*, 1883.

'SIR,—Last week I took occasion to view the beautiful signboard of Mr. Smith's; it is certainly one of the finest in the district, creditable alike to designer and painter; the subject "happy" and the colouring quiet, and a soft tone harmonising exquisitely with the strange yet attractive name board-beneath. Legends plenty, stories innumerable, are to be found and heard anent the device of "The Bee-hive;" around this sign of industry and activity hangs many a story of encouragement and effort, hallowed by the suggestive association of determination; but amongst all our legends or historical incidents the story of "The Bee-hive" of Pollokshaws links itself with an incident of peculiar interest, rarely if ever heard of, and sufficient to claim a name for the owner of apt conception and originality seldom found in connexion with signboards. But of this bee-hive:—Some weeks ago a levy of bees skepped in the south end of the town, "lifted," and, floating through space for a short time, decided, and, the queen followed by her loyal and active train, to rise themselves, as it were, from "labour to refreshment," and the most likely place was Mr. Smith's, of the Royal George, entering by a bolt-hole, a work of difficulty and delay, causing consternation and alarm to all around; the train numbered several thousands. The owner of the bees was sent for, and after several attempts to dislodge them he was successful in securing a large number. Those left behind, including the queen, determined on giving Mr. Smith a small token of their esteem, set to work, and with a will evidently encouraged by looking on their work as a solemn obligation towards the "right good fellow" of their affection; but the best-laid schemes, even of bees, "gang aft agee," as with men so with bees, for the next morning, whilst in the midst of bustle and honest labour, their master, who finding he had not B.B.B., returned armed to the teeth and took her away before the elements of discontent had time to germinate in the camp. Before leaving, however, with all the pomp and array peculiar to this tiny world of activity, a consultation with the Ministers of State took place, resulting in Mr. Smith being presented with a piece of honeycomb made during the night as a memento of their visit; and to immortalise the strange event the genial host has caused this beautiful signboard to be fixed up above his door, and there it is fixed "to do honour to whom honour is due," and to commemorate an event both strange and suggestive.—Yours, &c., THORNLIEBANK.'

BEE STINGS.

I see a great deal in the *Bee Journal* about the cure of bee-stings; I have not seen any one who has got my cure. I have tried almost all the cures mentioned, and have not found anything so effectual as the sap of a plant called *fowet* in this district: it will be found in Culpepper's *Herbal* by the name of House-leek, or Sengreen; it is often to be found growing on the tops of old thatched houses; it is called by old people 'healing leaf,' as it is very good for all kinds of sores on the body. I have been advised by other bee-keepers who have tried it, and say it is the best cure they know, to write to you about it. The way it is applied is, to take a leaf and bruise it in your hands, then rub the sap on the place stung, relief is found at once, and in a very short time the pain passes away.

I will give a few instances. I was drumming out a hive this summer without either veil or gloves, I got three stings on the right hand, one on the left, and three on the neck; my wife was standing ready with a few leaves to apply to them, and did so; I finished my job without any inconvenience, and felt nothing but a slight heat in my neck after. Another time I was stung on my eyelid: I never felt so severe pain in my life; in a few minutes the pain was gone, and almost no swelling. My daughter came, accompanied by a young woman and a child: the child was stung and was very ill: whitening was put on it, but without effect; a few leaves of the house-leek were rubbed on it, the child gave over crying and fell asleep. Mr. Mabon, an old bee-keeper from Jedburgh, called on me to see the bar-frame hives, he had a little boy with him, who was stung on the forehead; I rubbed one leaf on it, and he then said it was better. Mr. Mabon was very much pleased with the leaves and the cure; I gave him a plant to take away with him.

I will just give you another case: a master baker in Galashiels, who is willing to testify to anyone to the cure of a wasp-sting in the tongue; he lifted a small piece of cake (a wasp was on the under side of it) and put it in his mouth; he tried ammonia, it did no good:

as soon as the leaves were applied he felt a soothing effect, and the pain was all gone. The next morning his tongue was very much swollen and discoloured, and his throat was fast closing up, the swelling on the application of the leaf stopped, and he got instant relief.

Any brother bee-keeper or anyone wishing further information, by sending me a stamped envelope with his address, I will be happy to reply.—J. ALLAN, 9 *Elm Road, Galashiels.*

STINGS AND THEIR REMEDIES.

I have been waiting to see if any remarks would be made on the proposal contained in my letter of Oct. 15th. I must thank you for kindly offering to publish a selection from my list of the remedies already given in the *Journal;* but although I think the establishment of a permanent corner of the utmost importance, my experience is not sufficiently extensive to warrant me in accepting your offer.

For remedies for stings the *Bee Journal* would most naturally be referred to were it at hand; and if a list of the best known remedies were always in a particular part of the *Journal* attention might be given to the person stung without loss of time.

If you will give the necessary information, and allow it to appear in one particular part of each issue of the *Journal,* you will earn the thanks if not of all bee-keepers, at any rate, of those who, by adopting the remedies you suggest, are saved from any ill effects a sting or stings may be likely to have upon them.

I think the first suggestions should be that if the part stung be getatable the sting, if left in, should be pushed out, as has been suggested, by the finger-nail, and not grasped with the thumb and finger, and that the poison left in the wound should be forced out by the barrel of a small key being pressed over the puncture.

I hope you will be able to carry out my suggestion in the first issue of the next volume of the *Journal.*—C. N. WHITE, *Somersham, Dec. 8th.*

LIGURIANS *v.* BLACKS, SYRIANS, PURE AND CROSSED.

Of late several letters have appeared in the *Journal* setting forth the disappointing results of the Italian race of bees; and as I have tried and carefully observed them, and made diligent inquiries of people who have also done so, I think I am able to say something on the question. To begin, my first Italian queen from a noted breeder was put at the head of a black stock, when she proved a most prolific layer, and her bees were most beautifully marked, good nurses, and very tame; but as soon as the blacks dwindled off they ceased to make any progress, and quickly fell to starvation point. I then gave them a frame full of hatching brood, honey and pollen, and this trick I had to repeat every twenty days or so, by which means I got the hive crammed full of yellow bees, but not an ounce of honey; while the next hive to it, and which was about the same strength, &c. in everything, yielded over 60 lbs. of honey and two full swarms, besides sparing a few frames of brood to give the Italians. I sat and watched these Italians hours and hours, *and never saw one of them take in a single grain of pollen,* neither did any appear to be loaded with honey. I don't know whether anyone else has had a like experience, if so, I have not heard of it; but this extreme case just illustrates their true character: from my experience, and the information I have been able to gather, viz., that with all their virtues, they are thoroughly *idle bees,* and if anyone doubts it, let them try to prove it, and compare them honestly with blacks, when the latter's superiority over Italians for honey-getting will be strikingly demonstrated. How this idle trait has been developed I am not able to say with certainty, but should think it has been caused by artificially rearing queens in very small *nuclei,* generation after generation, to supply the demand for cheap 'imported queens,' which may be bought from dealers in this country at about 4*s.* 6*d.* each in October; and when we bear in mind that this price has to cover first cost in Italy, packing, carriage, risk of loss, and dealer's profit, I will put it to anyone and ask, What can you expect? Langstroth, in *Gleanings,* page 165, vol. ix., says that Italians are in at least three points *inferior* to blacks; but he does not impeach their honey-getting qualities. Langstroth says in this letter 'that he can easily agree with Vogel, that the Italian is a cross between the Egyptian and black bees;' and if we consider that the native Italians are surrounded by black bees, it is not hard to imagine that some Egyptian bees have been imported into Liguria at some early periods; probably for defensive purposes by the early Romans. I do not assert that all queens are like this, as there are so many people whose veracity I should be very sorry to doubt give them a good name; but perhaps if the history of these cases could have been investigated, it would be found that they had always been reared in a natural way, or at least the queen-cells and young queens had been reared in full colonies. If we ask what have been the points demanded in these bees? we find tameness, prolificness, and beauty, to be the points wanted; and if a bee-keeper has given himself up to wholly rearing queens, how is he likely to have noticed or inquired which have been the best honey-gatherers; the demand being for the above, that breeder who could supply at the lowest price has got the most orders? Now that queens can be sent 'per post' without any risk of their being detained or delayed, we may be able to get queens from the breeders direct without the expense of middle-men; and if we demand queens bred and tested for honey-gathering as well as other qualities and are willing to pay good prices for them, it will not be long before they are to be had; and until we can get them I would recommend people to get the

SYRIAN BEES,

whose great fault lies in being determined to make the most of every minute during daylight; they will be bringing in pollen when there is no honey, and when not a black bee will be working. I noticed last year that on some days they were the only bees that went out to work, and I thought them very valuable on that account; but this season having been very cold, dull, and honeyless, and having been able to observe them closer, I have come to the conclusion that this 'advantage' is not as advantageous as it seems in the pure race, but this trait can be turned to great account, if we mate Syrian queens with black drones; then they don't go out in bad weather, but the moment any honey is to be got, they work with a zest that would be disbelieved by all who have not had them. Then, too, what breeders they are! This last summer they maintained their brood at fourteen square feet of comb, or twenty-eight square feet, counting both sides, during the latter half of May and June, and July; so that the queen must have laid upwards of 3000 eggs per day. Then, again, during the two seasons I have had the pure and crossed Syrians; they have kept all the brood together, filling the frames completely from top to bottom, and side to side, beginning at the front and storing the honey in the rear; which has made it very easy to remove, for with hybrids all I have to do is to turn up the quilt in the rear, blow in some smoke, and remove the honey-comb—shaking off the bees—and when I reach the brood I have got it all, and my work is done, without any need to look at the front frames. I have already written in the *Journal* in praise of these hybrids, and I cannot say enough in their favour, and a Syrian queen for the purpose of producing them is fully worth whatever she may cost, no matter how high. It is said in a certain quarter 'that they are

very vicious;' with very *careless* handling they are, and I have found them rather cross when they have resolved to swarm, which is a valuable point to one who cannot be near his bees all day, as the hint, properly applied, tells him they are not to be trusted to themselves; and this 'fault' (?) is the only one I can find they possess. The principal two points claimed for Italians, viz., prolificness and ease of handling, they have in a greater degree, with the far greater one of being enormous honey-gatherers; but whoever happens to try these bees must remember that they require double the space required for blacks, viz., two 10-bar-frame Woodbury hives, one over the other, or eighteen Association frames in a long hive, for a brood nest, to get full results: and don't think they are ready to swarm when they are only wanting more room.

But to return to the pure Syrians; some people keep specimens of the animal kingdom for pleasure, some for study, while some keep them to make pets of them; and those who would fancy bees I say to such, Get the Syrians. When the sun shines you can open them, without veil or gloves, providing you do not jar them, or let them smell the slightest smoke; and you may place a hive close up to the house door, without the slightest fear of anyone being stung; you may also take a stool and sit close to the hive mouth and watch them for hours without fear. In fact, I consider them quite 'pet' bees; and one would think to see me handling and shaking them off their combs, they did not know how to sting; but let them only smell smoke, and I think a diving-dress would be useless to avoid being stung.

There is another race of bees—the Cyprians—which, from some accounts, seem to possess all these traits, but not having had the experience of them as I have of the above, I cannot give any account of their virtues. From what I can see, they seem very much alike, and may be even better bees than the Syrians.

I have tried the Palestines, but cannot give them the same praise as Syrians, though they have some good points, which may be valuable for cross mating, but at present I have not found an easy way to handle them, except making them gorge themselves by giving them smoke, and then quietly and quickly doing what I want, and promptly shutting them up again; for they soon empty their sacs of honey and begin stinging.

For the present, I say, pure Syrians for pleasure, and Syrian-black hybrids for profit; and as I see Mr. Benton, who I believe is the only person at present from whom they can be imported, is advertising them for next season, I say, order at once, and ask for delivery, if possible, before May 15th, which will give a good chance of hybridising a number of stocks right off, and getting a return from them the first season.—JOHN HEWITT, *Sheffield.*

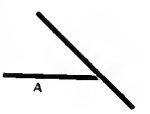
THE CAPE POND WEED.

I have seen no mention made in any of the issues of your *Journal* of an aquatic plant called the 'Cape pond weed' (*Ozolla pinnata*). I have placed this in a shallow earthenware pan in the spring, when bees are in search of water, and find they will use it in preference to that from other sources. From the nature of its growth it affords ready access to the water without the possibility of bees being drowned, as they can readily alight and move about over it. Where pans are used it is invaluable, as the waste of water from evaporation is considerably lessened, and when required to be replenished, can be filled without causing a single bee to move. It spreads so rapidly that a handful would soon cover a good-sized pond, and the only attention it requires is to reserve a little for next year's supply by keeping it under cover to protect it from severe frosts, which can be done by removing the pan or keeping a little in a saucer. The original cost need not exceed threepence or sixpence, and once obtained a supply can always be kept in the way mentioned.

I am sure this will be found an efficient substitute for such contrivances as bricks, wooden slabs, lichen, &c., which I have seen placed in pans, but never without some loss of life.—J. KINGSMILL, *Rottingdean, Brighton.*

ENTRANCES.

I notice much has been written lately in the *Journal* as to the different ways of protecting the above important parts of the hive by 'tunnels,' &c. I may, perhaps, be allowed to give an idea that I have adapted to all my bar-frame hives for the coming winter: it is simply two pieces of wood, about five inches wide, nailed together at an angle as below. The piece A lies on alighting-board, and stands some ½ inch distance from face of hive and entrance, thus allowing bees freely to pass; the slope throws off all rain and snow, prevents all cold winds from blowing direct into the hive; and one of the chief advantages it has is that it prevents the rays of sun entering hive, and so enticing so many bees in the winter and early spring days to a certain death; there is no possibility of entrances becoming choked with bees, as in case of the grooved boards or 'tunnels,' which are now by so many bee-keepers condemned. I may state the above idea is being adopted by several bee-keepers in this district.—G. H. G., *Bromsgrove, Worcestershire.*



SYRUP-MAKING.

'Cornubia' asks how I can reconcile my recommendations for making candy with my saying that if I was to adopt his way of making syrup I would get burnt sugar.

Allow me to inform him that I boil 28 lbs. of sugar at a time with the water he mentions, and I seldom need to boil it beyond fifteen minutes—of course I boil it rapidly as he says.

I hope that will make it plain to him that my assertion was not unwarrantable, and make him careful in stating a given time for boiling sugar in future, as people have different opinions as to what rapid boiling means; and if he will give my simple receipt for syrup a trial he will find he will not need to boil it beyond a minute, and it will do for all sugars.

'W. Crisp,' in your last issue, says all acids are unsuitable to use as bee-food, and they alone are the cause of more dysentery than unsealed food in the hive. Allow me to ask, on what authority he makes these assertions? I have fed bees for the past twelve years with sugar and acid, and never have been troubled with dysentery.

Again, he asserts that to feed bees with any form of candy the loss of bee-life consequent on their leaving the hive in search of water is the source of much loss, which by the use of syrup is greatly avoided. I beg to inform him that well-made candy needs very little water, as it is only about the thickness of honey before it is candied, and to remind him, on the other hand, that syrup requires to be evaporated, which causes the bees a considerable amount of labour. Did he never see the bees coming out and ejecting water while they were being fed with syrup?—JAS. SADDLER, *Forfar, Dec. 10th.*

PRIZES FOR BEE-KEEPING.

There are few persons in the United Kingdom who have not heard or read of the very many bee-shows held in the course of the year. In fact, the praiseworthy efforts made by the Bee-keepers' Associations to draw public attention to apiculture as a profitable pursuit have

made it impossible for any one who has given the least attention to the subject to overlook the fact that bee-keeping is now more largely and intelligently carried on than it was ten, or even five years ago. Associations of bee-keepers have been in existence in England for the last eight or ten years, and have done a vast amount of useful work, and in Ireland the first was the Irish Bee-keepers' Association, which was instituted in 1881, and in the formation of which the present writer took an active part.

But suggestions for the advancement of bee-culture and the increase of apiaries in Ireland date from a period long anterior to the forming of any bee association at present in existence, as appears from a pamphlet we have before us. This pamphlet is written by Sir James Caldwell, F.R.S., and is entitled 'A Proposal for the Increase of Apiaries in Ireland; addressed to the Dublin Society,' and the imprint sets forth that it is 'printed by and for S. Powell and Son, in Dame-street, Dublin, 1769,' or nearly 120 years ago. The author, in bringing his proposal before the members of the Dublin Society, says that 'the ability and integrity of the members are so well known that the last session of Parliament gave them the disposal of ten thousand pounds of the public money, and the present session has given eight thousand more.' His opening sentences are well worth quoting. He begins by saying that 'the offer of pecuniary rewards to those who excel in any useful art or manufactory has a much more powerful and extensive influence than appears at the first view; the benefit is much greater to him that obtains such a reward than the mere acquisition of the sum to which it amounts, for it confers an honourable distinction upon him to whom an increase of Republicanism is an increase of wealth. A reward of an hundred pounds offered to an artificer who shall excel in his profession excites an emulation in proportion to the ultimate advantages it will produce to the winner, which is probably not only in the estimation of fancy but of reason, more than twenty times the sum. The benefit that it produces to the public is also in proportion to the benefit it confers on the individual; for the more powerfully it excites emulation the more effectually it must produce improvement; it is at once both the cause and the reward of merit, in proportion not to its intrinsic value but its relative importance to the competitors; and in this view the money appropriated to encourage ingenuity and diligence is more improved than by any other application, for its value to the individual is increased, perhaps, as an hundred to one, by the manner and circumstances in which he acquires it; with respect to the nation, the encouragement of arts and manufactures is an advantage infinitely greater than could arise, not only from employing the inconsiderable sums which are given as premiums another way, but from the whole produce of the mines of Mexico and Peru, if they could be transported into this kingdom, and wrought by the very hands that now ply the loom or cultivate the ground.' Having said that bees have often been the theme of the poet, the legislator, and the philosopher, the author goes on to say that 'the bee may very justly be recommended to the Dublin Society as the manufacturer, the maker of honey and the wax.'

In stating the advantages of bee-keeping the author points out that the honey and wax are clear gain, that the making of the hives (or skeps, as we should now call them) furnishes employment for the lame and decrepit, and that the increased production of wax would admit of its being used for making candles, and consequently 'increase our exports of tallow, from which a very considerable profit accrues.' Unfortunately matters have changed very much since we were able to export tallow, the greater part of what we now use being imported from America. Writing of the medicinal properties of honey, our author says—'It is also a sovereign remedy in the torfumes [whatever that is]—a disease peculiar to this country from its great moisture. The inhabitants of Ireland in general have co'd constitutions. This constitution renders them liable to phlegmatic disorders, for which honey is a most excellent remedy.' Having touched on the suitability of the climate for bee-keeping, the author proposes that the sum of 100*l.* be allotted for the encouragement of apiaries by giving the person having the greatest weight of honey and wax above six cwt., 30*l.*, and four other prizes, ranging from 25*l.* to 10*l.* for the same purpose.

In the conditions of the competition it is provided *inter alia*—'That the hives shall be weighed in the gross, the bees being alive . . . in the presence of the minister or curate of the parish or any justice of peace in the neighbourhood or other reputable person.'

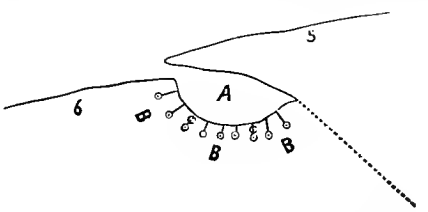
Speaking of the anticipated results of the measure the author says—'That it is hoped bees will be greatly increased in a short time: for as the proprietors could not keep such numbers of bees without employing the poor to the extent of six miles round to take care of them which they would gladly do for a small gratuity, it is reasonable to suppose that perceiving the advantages derived to the owners from the bees they looked after, they would be induced to set up hives and keep bees for themselves.'

We have not been able to ascertain whether the author's proposal was acted on, but we hope shortly to be in a position to do so, and lay the result (if any) before our readers.—HUMBLE BEE.

CONCERNING AN ORGAN OF THE BEE NOT YET DESCRIBED.

(*Translated by Mr. Frank Benton from the 'Bulletin d'Apiculture' of Switzerland.*)

Mr. Nassonoff, a naturalist connected with the Imperial Acclimatization Society of Moscow, while dissecting, in the apiary of this society, the abdomen of a bee, in order to study the structure of the glands of its outer covering, observed near the last ring which belongs to the cone-shaped portion, a small canal (A) which passes along the edge of the dorsal half of the ring, and is covered above by the edge of the preceding half-ring. Mr. Nassonoff



Section of the cutaneous covering of the last ring (6), and next to the last ring (5), of the worker-bee; A, the small canal; B, the glandules; C, the ducts of the glandules.

calls to mind the fact that bees when irritated often raise their abdomens, turning the tips (the fifth ring) downward in such a manner that the last two rings spread apart and show a white stripe which separates them.* It is exactly upon the posterior part of this stripe that the small canal in question is found, opening towards the space between the rings.

At the bottom of this canal a large number of small glands open, each one of which has an oval cell (B) with a well-defined globule. From each cell a fine duct starts out and extends to the bottom of the canal in question. The walls of these ducts are of the same texture as the hard portions of the cutaneous covering.

This description completed, Mr. Nassonoff goes on to conjecture as to the use of the glandules referred to, and wonders if they secrete the wax or the perspiration; but

* This same stripe can be seen when bees beat their wings in ventilating the hive, or as a sign of contentment.—TRANSLATOR.

rejecting himself the first hypothesis on account of the evidence assigning the formation of wax to numerous segments on the under side of the abdomen, he stops with the second supposition, basing it upon the absence of other glandules (?) on the body of the bee.

Without rejecting absolutely Mr. Nassonoff's supposition, I compare the existence of the above-mentioned glandules with the observation reported in one of the numbers of the *Bulletin* regarding the little drops that the bees let fall before entering their hives. It is known that bees partake freely of liquid substances, although they may contain a large proportion of water, like the nectar of flowers moistened by rain or dew; nevertheless the honey deposited in the cells does not contain the same proportion of water as the substances taken by the bees. That proves that the little drops mentioned represent the liquid excess thrown out by the bee, and it is to the organ noticed by Mr. Nassonoff that it seems natural, according to my idea, to attribute the expulsion of this excess. Might this not be a specific peculiarity in the organism of the bee adapted to certain functions?

On the other hand, it is known that the bees of a colony which needs water bring it by taking it into their abdomens—a proof, then, that the functions of the glandules are *discretionary*, whereas the act of perspiring of organic bodies is not so, and the exhalations (of the bee itself) are cast off ordinarily in the form of vapour which rises, and not drops which fall.—A. Zoubareff, *Wassilkowo, Russia, July.*

Echoes from the Hives.

North Leicestershire.—Bees were very restless throughout the month of November. On the 7th, 9th, 25th, 27th, 28th, they were in motion from morning till night. The maximum temperature of these dates ranged from 42° to 53°. The cold snowy weather which set in on the 30th still continues, and it is to be hoped the bees will now take quietly to their winter quarters. The rainfall for the month was 4.05 in. The minimum temperature 28° on the 12th, maximum 53° on 25th.—E. B.

Devonshire, Dec. 10.—So little has occurred worth noting in the month of October and November that I am reporting the two in one echo. Stocks for the most part are in winter quarters, but I fear that with the let-alone bee-keepers the mortality amongst their bees this winter will be considerable, as their stores must be very slender. The weather has been treacherous; the rainfall for October was 3·97 inches last year the same month we had 7·29 inches. The register for November was total rainfall 5·30, number of wet days 24, in 1882 the corresponding month the total fall was 6·50 inches, and then there were 27 wet days. I fear the British public still require to be educated to the flavour of genuine honey, as when I was in Cornwall last month and calling on a friend, I was asked to give my opinion on some American honey recommended to them as one of the best brands; it resembled honey, but if anything was slightly stickier; on tasting it I was compelled to say there was in my opinion very little pure honey in the mixture. 'Well,' was the reply, 'is it unwholesome?' and on my answering in the negative, they said they were content to go on with it as it was so much cheaper than English honey.—Wm. N. G. *Hon. Sec. D. & E. B. K. A.*

Cairnie by Keith, N.B., December 6th.—Winter has just set in upon us, but not nearly so sure as at the same date last year. On the 29th ult. the weather was warm and mild, and we observed the bees in all our hives enjoying a cleansing flight, which will be of great use this season. A good deal of food has been consumed during the months of October and November, and an early examination will be necessary. Northern weather-prophets predict that we are to have an early spring and fine weather; we hope they are right, and we shout, Hurrah!—A. Cockburn.

Leslie, Fife, Dec. 10.—We have had our first taste of real winter weather since my November echo. On Thursday the 22nd, we had about four inches of snow on the ground, but, except in hollows and dyke sides, it disappeared in a day or two from the low country; the hills remaining more or less covered. For the past four weeks bees have been confined inside, with the exception of two bright, warm days which were taken advantage of for an airing in front of hive, and the casting out of a few dead bees. Rainfall for November 5·5 inches, last year 4·5.—J. L.

Wicklow Co., Tinahely, Dec. 8.—Settled down again, severe frost here now, bees in close quarters. Latter end of season visited New Ross and transferred several hives of bees. Took a look at honey manufacture, Waterford. The skeps are purchased for 3*d.* and 4*d.* per pound entire weight. The combs are chopped up with a shovel upon a large strainer, they are afterwards taken to a large cider press where last drop of honey is squeezed out. The pressed drained honey is packed up in well-hooped new casks, holding each about six gallons and exported *viâ* Bristol. Twelve and fourteen hundred firkins of honey is the annual export: but this year the quantity did not go beyond 600 firkins. We all should feel grateful to the Rev. Henry Bligh for his Apiaries Competition; but I think his next scheme ought to consist of experimental stations or schools of instruction located in different parts of the United Kingdom in order that beginners may have a medium of instruction within reach.—J. Traynor.

An Echo from the Antipodes. Hobart, Tasmania, 23rd September, 1883.—How have your bees done this season? You never mention them now [Did not know he cared to hear about them]. Did you get much honey, and were you successful with the new swarms? We bought a lot of cheap honey this winter; it was tree-honey. Some man up country had no money to pay his bills, so he cut down a tree with a bees' nest in it, and got enough honey to pay his debts, though it was only sold at 5*d.* a pound. It had a peculiar wild taste. The gum-trees have a very strong smell, something like pine-trees, and the bees feeding on the gum flowers made all the honey taste of this. I am very busy with the garden now. This winter has been a proper Tasmanian one; only about three or four severe frosts all through. I believe if I had been about I might have put in peas and beans in the middle of the winter, and had them almost ripe now. I do not know whether it is usual here; I cannot understand the flowers, they *most seem to flower more or less all the year.* The only way is to put seeds in the ground and take cuttings, without regard to the season.

Queries and Replies.

Query No. 725.—*Honey Setting.*—1. What is the reason of honey strained from sealed combs, after a short period, going to the consistency of butter, and how can I avoid it becoming so? After straining, I directly placed it in 1-lb. glass jars, tied parchment-paper over. 2. *Preserving Sections.*—Which is the best way to preserve sections of honey, say for two or three months, while the shows are on. Last year was my first year of gathering honey in any quantity, and my honey, though pure from artificial feeding while the harvest was on, went like cream in glass jars; and sections, about 130 lbs., which I placed in a cupboard, got discoloured and seemed to dry up round the edges; no fire in the room. 3. *Selling Extracted Honey.*—If I extract unsealed honey *during the harvest*, can I safely sell that in jars? 4. Are the vacancies all filled up for experts or assistant experts, or will there be any examinations in future?—Perseverance.

Reply to Query No. 725.—1. All honey, if pure, will set sooner or later; you may retard setting by

keeping warm. Honey from some flowers (for example, mustard, rape, and others of that tribe) sets sooner than that from others. 2. If you put your sections in crates with glass sides, they will keep in good condition for as long as the shows last, and longer. We do not understand them 'drying up;' the discoloration might be from unsuitable wood being used for the sections. 3. You may safely sell the honey extracted during the height of the harvest. Your honey setting as you describe is proof of its being ripe. 4. We believe that the examination for experts will take place annually. Vacancies for experts may arise at any time.

QUERY No. 726.—1. *Position of Sections.*—In *Modern Bee-keeping*, they recommend the section rack or super crate to cover the top of hive; should it be made for the sections to run across, or along the bar-frames? 2. *Zinc-excluder.*—Ought the zinc-excluder to cover the top of hive, and long holes run same way as bar-frames? 3. Should the excluder be put in front of queen and brood-nest, or behind? I bought an excluder of Messrs. Abbott Brothers, which seems to fit best upside down to me. Should the bar with two bits of wood nailed on each end go top or bottom between the frames? 4. If the holes run the same way as frame, would 11 inches be wide enough for excluder as well as adaptors?—E. C. LANDER.

REPLY TO QUERY No. 726.—1. It is immaterial whether the sections are parallel or at right angles with the bar-frames. 2. The excluder should cover top of bars, and the same remark as to position applies to position of supers. 3. If it is the intention of the bee-keeper to prevent the queen from depositing eggs in the combs of bars at back (when these are required for instance for extracting purposes, or when sections are put there), then excluder should go at back of brood-nest and in front of these bars. If it is desired to keep queen in the hive and prevent swarming, then put excluder in front of brood-nest. 4. Yes.

QUERY No. 727.—1. *Removing Stocks.*—Is it possible to remove three stocks of bees in straw skeps by rail from Gloucester here *now?* 2. *Position when Removing.*—Is it best to turn them upside down when travelling? 3. *Weight of Skep.*—What should a skep weigh now to stand through the winter? 4. *Transferring.*—When is the earliest we can transfer to bar-frames?—W. T. BIRCHALL, *Maidstone.*

REPLY TO QUERY No. 727.—1. Yes. 2. Turn them upside down and rest the crown in a ring of hay-band to prevent jarring, and to form a stand so that they do not roll about when put out of hand. Put a rope handle across to carry by, and direct clearly, 'This [the canvased] side up.' 3. From 20 to 25 lbs. at this season will be ample. 4. It is generally recommended to wait until twenty-one days after swarming, but if you are expert you may do it at any time when the weather is warm enough. Take care not to chill the brood. Of course transferring will delay swarming.

QUERY No. 728.—1. *Twin-Hive.*—I have a large chest about three feet long which could be easily converted into a good twin-hive. Do you think an entrance at the end and one in front would answer every requirement with regard to entrances? 2. *Stands for Skeps.*—Do you think that a shelf twelve feet long for the accommodation of five skeps would give sufficient space between?—A. E. S.

REPLY TO QUERY No. 728.—1. We should put the entrances one at each end of the twin-hive. We prefer the frames to be in all cases across the entrances. 2. We do not approve of many skeps on one shelf. You would do better to let each have a stand to itself. Three feet apart from centre to centre is enough, but a greater distance is better.

NOTICES TO CORRESPONDENTS & INQUIRERS.

BRIAR TOR.—*Position of Hives.*—We do not like the position proposed for your bees. The reflection of heat from the south wall at the back, and from the greenhouse in front, cannot fail to be injurious, especially during the heat of summer. An open space in front of the hives is also much to be preferred, as offering no obstruction to the ingress and egress of the bees. If this, however, is the only site you can afford your hives, we should advise a year's trial with care in shading during summer heats.

T. RUSSELL, *Felling.—Hybrids.*—The bees forwarded are hybrids, one degree removed from pure Ligurians. We can well believe the account given of their capacity for work.

H. S. Y. Declined, with thanks.

T. SHAW, *Malden Road.*—In small hives, it is desirable to have loose floor-boards for facility in cleansing them. In larger hives this is not so necessary, as to effect the same purpose the combs may be shifted from one part of the hive to the other.

Several Replies for which we could find no space have been forwarded privately to Correspondents.

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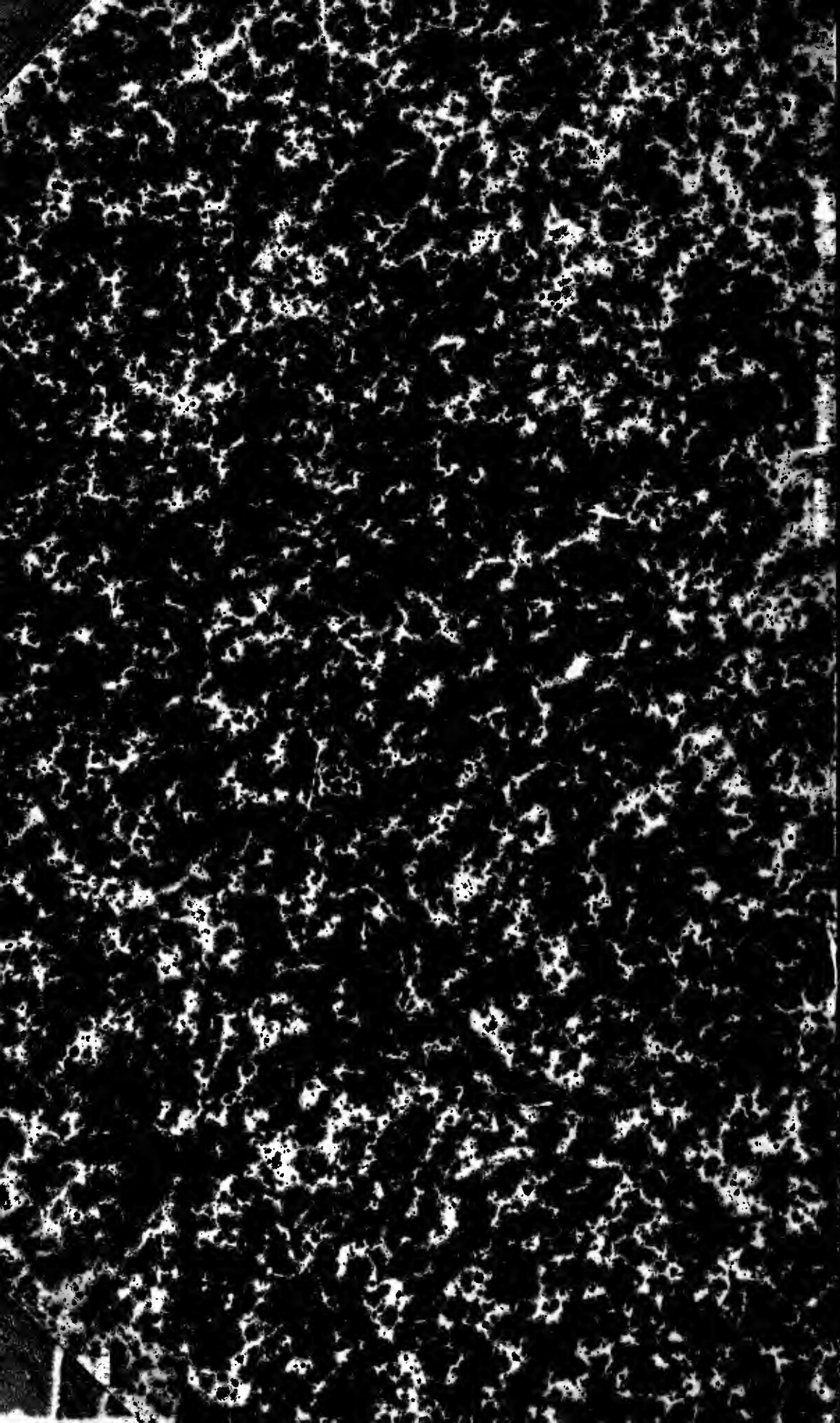
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